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Another SAUNDERS BOOK on Page 3

SUBJECT INDEX TO THIS ISSUE

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THE CHILD WITH POTENTIAL HEART DISEASE *

C. G. KERLEY, M.D.
NEW YORK

Organic acquired heart disease in the child is one of childhood's diseases in which practically no progress has been made in alleviation or cure in the past forty years, which covers the time that I have been actively engaged in the practice of pediatrics; and this in spite of the establishment of associations for the study of heart disease in children, in cardiac clinics and cardiac homes. I do not discredit in any sense the effort to improve the condition of the child who has heart disease, but when our best has been accomplished, the patient still has a defective organ with all that it implies. Our prophylactic attempts have rested largely in the eradication of apparently infected foci, but this is no insurance against heart disease, as all who treat children on any considerable scale are aware. If every child from the third to the tenth year of age could pass through this period free from infected foci, there would be fewer cases of acute endocarditis but the disease would be by no means eradicated. Every year patients with endocarditis come to my attention who have received adequate focal treatment before the development of the endocarditis; this fact the literature on the subject emphasizes. In order to make an impression on the prevalence of heart disease in children we must appreciate that this is a problem intimately connected with the early years of life; it is well known that certain family groups possess a diminished resistance to the invasion of the tubercle bacillus. Family susceptibility we are aware exists for other diseases.

In certain children there exists a physical state, a physiologic entity, which supplies an inherently favorable soil (which may not be experimentally produced) for the development of infecting agencies that may cause rheumatic endocarditis, and this type of endocarditis is responsible for more than 90 per cent of the cases of organic heart disease in children. The child with the inherently favorable soil is a child with potential heart disease, in that he is more vulnerable than others to the infecting micro-organisms. If all children with diseased teeth, infected sinuses and infected tonsils developed endocarditis, few would escape. As it is, few of the great family of children develop the disease and these are the unfortunates whose bodies supply the favorable soil.

A vast number of patients with heart disease have come under my observation in private, hospital and outpatient practice; it is rare that the early history was not sufficiently suggestive to stamp the case as potentially cardiac. Months and perhaps years before heart disease developed the children with potential heart disease show warning signals, and what are the significant signs? Muscle pain and stiffness, sometimes joint pains, pain in the extremities by day and often complained of by night. The complaint repeatedly of tired legs is significant in a well child. Children who sleep restlessly, who toss about much in their sleep, have been made to rest normally by the use of salicylates. All children who complain repeatedly of muscle and joint pains, particularly on wet and so-called damp days, stand out prominently in my mind as potentially having heart disease. In such cases an immediate removal of the tonsils, regardless of their appearance, is demanded. The teeth should be passed on by a roentgenologist, and there should be competent sinus attention. No one may say in looking at a tonsil that it is not diseased. The small, innocent appearing buried tonsil may be badly diseased and most dangerous.

In addition to the eradication of possible foci of infection, I put these predisposed patients under the administration of salicylic acid in some form, sodium salicylate usually, and methyl salicylate (oil of wintergreen) occasionally. The drug is given in sufficient amount to control the pain and discomfort and later it is given interruptedly—five or ten days or more out of the month, for months and perhaps years, and its use is resumed in a vigorous fashion at the first indication of a return of the muscle pain or soreness.

A child with rheumatic fever of the acute articular type is preeminently one with potential heart disease. For prophylactic cardiac purposes, such patients must be given large doses of the salicylates while the disease is active and interruptedly thereafter for an indeterminate period; after the same fashion every patient with chorea is looked on and treated as potentially having heart disease. Parents are acquainted with the danger confronting such children and are told that the child should be under medical supervision until he is 12 or more years of age.

It has been asserted that the use of salicylic acid is unscientific, that there is no proof of bactericidal effects, which I admit. So much attention has been paid to antiseptic agents in infection that we forget that our beneficial results in the use of a remedy may be due to its ability to establish a protective tissue resistance to the infection in question. The child I have described has a diminished resistance to the type of infection the outcome of which may be endocarditis.

As a medical student in Vienna, thirty-six years ago, I recall that Kassowitz was a most ardent advocate of the use of cod liver oil in rachitis. Norse fishermen had given it to their children a few hundred years before Kassowitz, and how long is it that we have known even a little as to how it acts?

* Read before the Section on Diseases of Children at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

Decoctions of cinchona bark were used for the treatment of malaria hundreds of years before the plasmodium was discovered, and the use of mercury antidates the discovery of the spirochete many hundreds of years. I admit that the use of salicylic acid as a prophylactic agent against endocarditis is empiricism and impossible of scientific demonstration. "Medicine is in part a science; it is also an art that uses science as far as it can, but uses useful facts regardless of their origin." [1]

A discussion of heart disease is not a part of this contribution; but the question arises, Does the heart in the performance of its function in any way indicate that its integrity is threatened? Physicians and parents are often much disturbed by the irregular heart action of the small child and more disturbed by the rapid heart of the highly emotional overworked school girl in whom there may be pulse irregularities; the heart pounds, and there may be a visible cardiac impulse. The physician thinks that the heart is involved; auscultation adds to the confusion in that it may reveal what Cabot defines as a presystolic gallop arrythmia in which an extra sound occurs just before the usual first sound which is never clearly defined, with accent on the second half and which passes as a murmur. The presence of a pathologic murmur is further established in the minds of the examiner by the presence of an apparently accentuated second sound. It is not appreciated that the pulmonic second sound in children is almost always louder than the aortic. Such a rhythm may occur in any heart that is excited or overworked. I find it a very frequent occurrence in patients of the type under consideration. Such patients are often diagnosed as having heart disease or potential heart disease but they do not have heart disease in any pathologic sense. The phenomenon disappears shortly under rest and the removal of emotional surroundings. The cardiac phenomenon is just one of the manifestations of nerve imbalance due to indifferent causes, which I may not take up at this time.

CONCLUSION

There is a type of child that is particularly susceptible to the infecting agencies that cause heart disease. Such a child possesses what is termed a favorable soil and may be recognized and belongs to one of three groups:

Group 1. Those who have or who have had rheumatic fever.

Group 2. Those who have or who have had chorea.

Group 3. Those who complain repeatedly of pain in the extremities which may not be accounted for by trauma or disease. A particularly susceptible child may be classified as belonging to the three groups. Heart disease in children so afflicted may be prevented in many by the eradication of diseased foci, first with a persistent and later with an interrupted use of salicylic acid alone or combined with an alkali.

When physicians appreciate the dormant possibilities behind the "growing pains," heart disease will be appreciably lessened.

132 West Eighty-First Street.

ABSTRACT OF DISCUSSION

DR. WILLIAM A. MULHERIN, Augusta, Ga.: All well informed pediatricians, I feel, are fully cognizant of the cardiac dangers that lurk in myalgia (growing pains), mild arthritic pains and chorea, especially if these clinical manifestations occur in a child from 5 years of age to puberty. It is the general practitioner who does not fully realize that the common manifestations of acute rheumatic infection are myalgia, mild arthritic pains, chorea and endocarditis or pancarditis. Rightly, Dr. Kerley calls attention to the potential cardiac child, for when muscular pains exist in children they are usually indications of rheumatic infection, and endocarditis, another manifestation of this infection, is to be expected. The profession has at its command preventive measures, as regards heart involvement, but the results appear not to have been brilliant. However, I feel convinced that the profession has been and is accomplishing something worth while along this line. The preventive measures to which I refer are: (1) a clearer conception of rheumatic infection and its frequent cardiac manifestation; (2) a keener desire to remove infected foci, thereby protecting the heart; (3) the establishment of cardiac clinics and homes, which are educating the mothers to the dangers of heart involvement in mild rheumatic infection; (4) better nutrition of babies and children, thereby raising their vital forces that they may better resist all infections; (5) physical rest in comfortably warm rooms when mild rheumatic pains manifest themselves, and confinement to bed when fever accompanies them, and (6) the more intelligent and freer use of salicylates. All these measures, I feel quite positive, are preventing cardiac involvement in some acute rheumatic cases. In regard to heredity, I am thoroughly in accord with Dr. Kerley. I think that there does exist a physical state, a physiologic entity, that supplies the individual with that inherent lowered resistance to the organism, whatever it might be, that causes acute rheumatic infection. As regards the removal of tonsils in all cases in which rheumatic infection exists, I am inclined to believe that the question is debatable. When the tonsils can be incriminated, they should be removed, but in all instances I do not feel quite sure that much is accomplished by tonsillectomy.

1. Pusey, W. A.: The Importance of Being Historically Minded, J. A. M. A. 89: 2079 (Dec. 17) 1927.

MODERN DIAGNOSIS

THE SECOND ALPHA OMEGA ALPHA ANNUAL LECTURE *

JAMES B. HERRICK, M.D.
CHICAGO

Successful diagnosis depends on a working familiarity with the facts and principles of medicine and with the rationale and technic of many laboratory and instrumental procedures. The mass of medical knowledge has become so huge, the procedures so numerous and often so complicated, the contacts with sciences cognate to medicine so frequent and intimate as to make diagnosis today, while far more accurate, much more difficult than it used to be.

Formerly, even through the middle ages, diagnosis was largely a matter of acquaintance with tradition and the fathers of medicine, a speculative, philosophic contemplation carried on nearly as well by solitary musing in the study as at the bedside. Later, cases were carefully observed and clinical pictures drawn, such as that of chorea by Sydenham. The era of physical diagnosis, with the correlation of its observations with those of pathologic anatomy as expounded by Morgagni, lasted several decades from the time of Laënnec in the early nineteenth century; it is not yet entirely a memory. With the microscopic examination of tissues—including the blood—and the new science of bacteriology, the diagnostic laboratory of pathology and bacteriology evolved. Body fluids and gases were analyzed by chemical methods. Scores of instruments of investigation were devised. The x-rays in the nineties revolutionized diagnosis, threatening to overthrow physical examination and greatly altering the interpretation of symptoms. New disease complexes were

* Read before the Alpha Omega Alpha, Minneapolis, June 14, 1928.

described; disturbance of function as well as anatomic change was stressed, and many refinements as to physical observations and symptoms were noted. Altogether a type of diagnosis has come into being, wonderfully different from that of two or three centuries ago. This depends so much on an intimate acquaintance with the appalling number of facts concerning disease and with technical manipulations as to defy the efforts of any ordinary mind to become a master in all departments. Medical diagnosis has long ceased to be a one man job.

There is another feature that, not always recognized, makes it difficult for one man alone to make the diagnosis. To name a disease is not everything. The modern diagnostician is expected to understand what is implied by this name. He must view the subject from many angles, etiologic, anatomic, physiologic, clinical. As a matter of fact, no two physicians view a case exactly alike though they may agree as to diagnosis. Each sees a different picture with a foreground stress on different features. To illustrate: Several physicians may examine a patient and agree that his disease is typhoid. But to one the diagnosis typhoid brings up a picture of the germ of the disease, of bacteremia with toxemia. Another sees the anatomic changes, the ulcers, the enlarged glands, the spleen. Still another emphasizes symptoms, i. e., the fever, the slow pulse, the spots; or he may visualize a possible hemorrhage or perforation. Prognosis or treatment may be the thought of a fourth—specific therapy, the value of drugs, the proper diet. Or, again, the social and economic features may be considered, the danger to the others in the family or the community, or the monetary loss. While all such thoughts may not consciously go through the mind of the physician, he must recognize these and other factors if he is to be the well informed physician who makes a comprehensive, scientific diagnosis.

It is clear, then, that no one man can be a universal diagnostician. He must have help in any except the simpler, everyday cases. Where can the physician get this help? The answer has been already worked out —partially. First, clinical specialists have developed. For a long time such specialties as surgery, obstetrics, ophthalmology, neurology and dermatology have had recognition not alone by physicians but by lay people as well. The patient with a visible tumor of the breast or a disabling injury to a bone goes directly to the surgeon for diagnosis as for treatment. For a painful eye or a supposed neuralgia one goes to the ophthalmologist or the neurologist.

Secondly, laboratory and instrumental specialists, as microscopists, bacteriologists, chemists and roentgenologists, have appeared in great numbers. These men may have perfected themselves in the particular method of examination in the course of their clinical practice, e. g., the urologist; or they may, without active bedside practice, perhaps not even being graduates in medicine, class themselves as pure diagnostic specialists, e. g., chemists and bacteriologists, whose avowed vocation is to give expert opinion to physicians on some particular phase of disease. In the latter capacity they are often found as members of a group whose personnel may function as an independent diagnostic laboratory or as a part of the equipment of the up-to-date hospital.

Lastly there is the group, *sensu strictiori*, often called the clinic—practitioners of various types with laboratory and instrumental experts, with free interchange of opinions and intensive departmental study of special features of disease. The group is still on trial. Whether it will remain in some modified and improved form is a matter to be decided in the future.

One finds, therefore, that while the individual physician may be incompetent to use to the full the accumulated knowledge of disease, or himself to employ the many useful diagnostic aids furnished by the laboratory and by instruments, he may yet receive the needed help from consultation with colleagues who are specialists, from diagnostic specialists or from the so-called group, a combination of the clinical and laboratory workers.

Now there are dangers and difficulties in these methods. Though some of these have been pointed out by others, they will bear repetition.

1. The point of view of the clinical specialist is often narrow. He is apt to go at a case as do some unwise microscopists who omit the bird's-eye view afforded by the low power lens and use only the oil immersion. He thus misses the relations of parts and ignores things outside his own narrow field.

2. Technicians, often not physicians, are too prone to interpret observations in terms of disease, concerning the pathologic and clinical features of which they may know very little. And their interpretation may be wrong. Illustrations occur at once, such as an improper value assigned to leukocytosis or increased metabolic rate or the Wassermann test, and the grotesque, though sometimes tragic, misinterpretation of roentgenograms.

3. A group diagnosis may be perfect in all its parts; statistically, physically, chemically, quantitatively it may be correct, but as a whole it is only assembled and machine-made and may be a misfit. There is lacking the important feature of personal contact between physician and patient, with proper integration and estimation of the value of details. Personal impressions count for much. It is at times more important to note how a patient tells a story than what he tells. Diagnosis is fortunately daily becoming more and more scientific but it does not yet hinge alone on hydrogen ion concentration of the blood or on the number of hours it takes a barium meal to get to the sigmoid flexure.

4. The general practitioner may be stubbornly reactionary—*laudator temporis acti*—may deny the value of the new, stick to "hunches," experience and physical examination, and thus be as prone to error as the narrowest minded specialist or the most mechanically minded technician. This is largely a defense reaction on the part of the practitioner who realizes his ignorance of much of the new knowledge. In the end it makes him a nonprogressive back number.

5. Or, with a vivid consciousness of his own limitations, distrusting his own powers, undervaluing his function as the personal adviser of the patient and as the final arbiter in the particular case, the liaison officer between patient and specialist, the general practitioner strips himself of self-respect and humbly, almost apologetically, becomes a mere distributer to others of patients who are in need of diagnosis.

What way is there out of these difficulties? How may these dangers be avoided? What is the future of the general practitioner in the matter of diagnosis? And, of greater importance, what is the future of the patient, whose welfare should be paramount? The solution of these questions is in process of evolution. I can advance only a few ideas, which are discussed more from the standpoint of the physician than of the patient, the latter really being the logical method. Time may show these ideas to be prophetic or otherwise—even foolish. There is, it seems to me, a safe and sane

middle ground that preserves the best of the features of the old time diagnosis but permits and encourages the use of the new.

In the first place the general practitioner should cease apologizing. He should feel that there is a place for personality in diagnosis as in treatment. The roentgenogram may show gallstones but what those gallstones mean as to the health of the patient is a matter to be decided by the physician. What may be the effect on health of a tuberculous condition shown by roentgen examination or guinea-pig inoculation is also decided by the physician in person and not by instrumental methods. Perhaps the Wassermann reaction is four plus. What that means to the patient is not for the laboratory to decide; it is a purely clinical question. A bare diagnosis of a disease condition does not always show how disease affects the particular patient, how it disturbs his functions or even whether it is the particular disease that is producing symptoms. In other words, there must be individualization in diagnosis as in treatment. The practitioner, while properly in a state of humility before the many scientific diagnostic procedures, need not be in a state of humiliation. He may still retain self-respect as he realizes that no x-ray apparatus or other instrument is at once witness, jury and judge. He, the practitioner, still has something to say as a witness, more as a juryman, and still more as a judge.

It must be admitted—even by the stubbornest of old style practitioners—that medicine is becoming more scientific and less empiric, and that the phenomena of health, disease, physiology and pathology are more and more to be measured by formulas of physics or chemistry. The instruments and the laboratory tests are therefore of inestimable help, even though their final status is not yet definitely settled. To deride determinations of the basal metabolic rate, white blood counts, chemical tests of the blood, Wassermann tests and blood pressure estimations because, forsooth, from thirty to fifty years ago physicians practiced medicine well without them, or because these tests have at times left one in doubt or have even misled one, is as foolish as to prefer tallow dips to electric lights because Oliver Cromwell and Abraham Lincoln had light from candles or pine knots and because, at times, something is wrong with the electric current. These things have come to stay, to be improved, some destined to be replaced by something better. They must be accepted and used, but rightly.

There is a type of physician who is skilled in physical diagnosis and who regards the x-rays, the bronchoscope, the electrocardiograph, or the sputum examination as unnecessary. He still worships at the shrine of Laënnec, Skoda, Stokes and Flint. He is a fundamentalist. He cites his own successful diagnosis of thoracic aneurysm and a small patch of tuberculosis of the lung which the roentgenologist missed, and, because of the many misinterpretations of earlier or even present-day roentgenology, condemns the whole procedure.

There is no branch of diagnosis that needs greater criticism than roentgenology. Technicians have too often gone wild in diagnosing tuberculosis of the lung, tumors of the brain, diseased appendix or peritoneal adhesions to make one very charitable toward them. But roentgenology is still in its infancy, and the roentgenologist is learning and learning fast. Even the most ardent disciple of Laënnec must admit that, with all their errors due to inexperience and the uncontrolled enthusiasm of youth, as an aid in diagnosis the x-rays are invaluable. They are not used enough in routine work. Their revelations are often so gloriously clarifying as to cause the physician to forget his chagrin at the exposure of his carelessness or his inability to recognize a definite tuberculosis of the lung, a carcinoma of the stomach, a fracture of a vertebra, or an unsuspected gallstone. The diagnostician, whether surgeon, internist or specialist, as well as the general practitioner, must lean and lean heavily on the x-rays. There must be team work and cooperation in efforts to improve technic and the interpretation of roentgenograms.

However, the x-rays, the electrocardiograph and other instruments should not be looked on as supplanting other forms of diagnosis but as helping to sharpen the physician's wits, inciting him to elicit better histories, to understand better the significance of symptoms, and to perfect him still further in physical diagnosis. The latter is in danger of becoming a lost art through neglect on the part of students, teachers and practitioners. How often does the physician slur over an examination of the chest, lazily passing on the job of determining the size of the heart or the possible patch of consolidated lung to the x-rays. He may forget that râles and prolonged expiration, heart murmur, altered second tones and gallop rhythm are beyond detection by the x-rays. He is liable to forget, or to be ignorant of the fact, that he may be able to detect tuberculosis that the x-rays may not reveal, or to determine the size and shape of a heart that may be distorted in the silhouette on the film made by faulty technic.

On the other hand, there is a danger that younger physicians especially may be carried too far by the lure of the laboratory and instrumental side of diagnosis. Physics and chemistry are spoken of as exact sciences. The various dye tests and the tests that are concerned with the microscope, titration or the incubator seem to have an air of finality about them that attracts the undergraduate or young practitioner. They are referred to as tests or instruments of precision. He learns later that some of these tests are only approximately true—that what the eye sees as it looks through the microscope or views the roentgenogram or inspects the terminal color or sediment reaction in a special test has to be interpreted by a human brain that is here just as subject to error as when it tries to translate into terms of pathology what the eye sees, the fingers feel or the ear hears when the human body is subjected to thorough physical examination by the physician. One reason for the attraction exercised by the instrument and the laboratory is that many of these laboratory reactions and instrumental workings are complicated and but poorly understood by the average physician. So, in accordance with a phenomenon of psychology, he believes in the mysterious and the nonunderstood and underestimates the well established simple methods of age-old tradition—the history, physical examination, repeated observation and comparison with similar cases recorded in the literature or those seen in practice.

The time has not yet come to discard these methods. The careful history is still the basis of diagnosis. Repeatedly one sees the skilled physician extract the history, cross-examine the patient and get facts that settle the diagnosis or give the clue that permits the further examination to be followed up by the laboratory or instrumental method. But the value of the history, 50 per cent of the diagnosis, I may say, depends on

who gets it, how it is gotten, on the skill displayed not only in getting facts on cross-examination but in interpreting them, estimating the credibility of witnesses and judging whether the testimony is of primary or secondary importance. A good knowledge of human nature is here very helpful, as is an unbiased mind. Observation, too, is undervalued. It means looking and looking again. It means looking and seeing, looking and thinking. Unhappily, it must often be said of physicians, "Eyes have they but they see not."

Again, the general practitioner or the specialist has fallen too much into the habit of having specialists make examinations that he is fit to make himself. He can ordinarily recognize a fractured fibula, a hernia, a lipoma, a uterine fibroid. He is competent to pass on most cases of diseased tonsils. He can recognize and interpret heart murmurs. He knows what lightning pains and unsteady gait may mean and is quite competent to test the knee jerks and pupils to confirm his suspicions. He need not turn the case over to the neurologist for diagnosis. He may even be able to examine the retina or larynx and to make the lumbar puncture. And surely it is not always necessary to call in a specialist for a vaginal or rectal examination, though the frequency with which the latter is omitted by the general practitioner lends point to the *bon mot* of the French physician who said that the main function of the consultant was to examine the rectum. In the ultimate analysis, the rubber glove may be classed as an instrument of precision.

In fact, there is no one in a position so advantageous for reaching a diagnosis as the family physician. He knows the early history and he knows the constitution of the patient, which, in spite of ridicule, amounts to something. The family physician also, as has been well said, sees a moving picture of the disease from its incipience; the consultant sees only one exposure and that perhaps not characteristic.

In order that the general practitioner may be fit to make a large proportion of his own diagnoses—and he should make many more than the majority—he must not only know much about disease but also know his own limitations, the limitations of specialism and those also of particular instruments and special methods. This he has not always been capable of doing. The late Dr. Hoover once told me that he felt that the Wassermann reaction had done more harm than good owing to its unreliability and to misinterpretation by the gullible practitioner. Sir James Mackenzie petulantly said that it would have been better if the stethoscope and sphygmomanometer had never been invented. Many have expressed the opinion that the world would have been better off if roentgenograms of teeth had never been taken. These views seem to me as wrong in their extreme attitude as is the position they decry, that of implicit belief in the diagnostic acumen of the Wassermann test, the blood pressure reading, the dental roentgenogram. Because there have been misinterpretations of these tests with hastily drawn conclusions and overzealous and injudicious treatment, it does not follow that the tests ought to be discarded. The error is in physicians, who have misunderstood, have wrongly conferred an attribute of infallibility on the tests and have therefore brought them into undeserved disrepute.

If recent graduates and practitioners are to know the limitations of specializing, they should be allowed in their undergraduate days to pursue the study of some one or two subjects far beyond what is commonly outlined in the college curriculum. Standardized courses, the teaching of the fundamentals only, "only the essentials," produces an average or mediocre student who is apt to feel that he knows more than he really does. President Wilkins of Oberlin, referring particularly to undergraduate work in the college of literature and arts, says:

> If the modern man is to render efficient individual service in the maintenance and development of human society, he must have a large measure of significant and ordered knowledge within some special field. College education shall, therefore, be in part general, in part special—in part extensive, in part intensive.[1]

If in the medical college as in the literary college the student majors in some subject, such as pediatrics, pathology, gastro-intestinal diseases or urology, he will have learned the lesson of thoroughness. He will know how to consult literature. He will be able to judge of current medical literature and will not be too prone to believe in the truth of a statement just because it is printed. He will learn of the fallibility of human judgment, the unreliability of experience, the untrustworthiness of some so-called methods of precision. He will, on the other hand, rely on certain types of experience, will regard certain combinations of history and physical, instrumental and laboratory observations as final. In other words, he will have learned how to think for himself. He will have wisdom and will know where to go for more knowledge. He will know when to call for help in diagnosis and will be a good judge of where to go to get it.

This principle of majoring in undergraduate medicine should be carried over into the life of practice. Unless this is done the practitioner goes stale. The concentration on some subject after graduation, with the sense of mastery and power and the accompanying zeal for the new, is what will save practitioners from being mere drudges, doing hackwork only, without pleasure in their work and with no sense of progress or consciousness of superiority.

If I try to summarize this rather rambling and incomplete paper it will be seen that the thought centers about the general practitioner. He is able to diagnose the majority of commoner ailments as well as a large proportion of typically frank, rarer, serious examples of well known disease. Often, however, in order to tell what is the matter in a complicated or obscure case he must appeal for help to the clinical or laboratory specialists, who may work singly or in groups. In doing this he should realize that the specialist may be narrow minded, the technician incompetent to interpret in terms of bedside disease. The group diagnosis may be lacking in information as to the essential detail, which may be lost in the blur of a characterless composite picture.

The physician should not stubbornly refuse to accept the new nor should he be carried away by its supposed scientific accuracy. He should learn to employ the laboratory and instruments as important or, at times, indispensable aids to the older methods of history taking, physical examination and personal contact.

In order rightly to judge of the need and value of special examination in a given case, he should have had undergraduate training in more than the so-called essentials of medicine. In one or two branches his studies should have been of an intensive, concentrated character that enables him to understand his own limitations and those of others. This will make him a master in some one branch, with a self-respect that

1. Wilkins: The Changing College, p. 16.

comes from the consciousness of power, will give zest to his work, will arouse in him the desire to continue such study into his life of practice and even to do investigative work of his own. It will make him a contented, forceful, progressive practitioner who can trust himself and therefore be trusted by others in that most important function of the physician, the telling of what is the matter with those who are ill.

I add as a postscript a quotation from Francis Bacon. While of wider application than to the diagnostician, it so aptly characterizes the mental traits such a physician should possess that it is well worth recording:

> For myself, I found that I was fitted for nothing so well as for the study of Truth; as having a mind nimble and versatile enough to catch the resemblances of things (which is the chief point), and at the same time steady enough to fix and distinguish their subtler differences; as being gifted by nature with desire to seek, patience to doubt, fondness to meditate, slowness to assert, readiness to reconsider, carefulness to dispose and set in order; and as being a man that neither affects what is new nor admires what is old, and that hates every kind of imposture. So I thought my nature had a kind of familiarity and relationship with Truth.[2]

122 South Michigan Avenue.

SICKNESS IN RURAL NEW YORK

MORBIDITY SURVEY OF CERTAIN DISTRICTS IN 1927

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In most of the civilized countries of the world, mortality is slowly approaching an irreducible minimum. In the state of New York, for example, the death rate in 1927 was 12.3; in 1890 the rate was 21.4, the highest since 1885, when the vital statistics of the state were first compiled. Thus, in the course of thirty-seven years, the death rate dropped 43 per cent. Among the many factors responsible for this great improvement, organized public and private health activities occupy a prominent place. But will the continued and extended application of these efforts produce similar results in the course of the next two score of years? The answer is clearly and emphatically no. A reduction of 43 per cent in the present death rate would mean that only seven out of a thousand persons would die in the course of a year, and this cannot be hoped for. While even large communities may for a time record rates as low as 10 or even lower, such figures cannot persist. A death rate of 10 means an average duration of life of 100 years, and in a stabilized population with a normal proportion of persons in the various age groups such a permanent rate is not possible.

The death rates in the state of New York and in this country have in the past been influenced considerably by the fact that the population contained a disproportionately large number of young persons, owing to the constant influx of immigrants from the countries of the Old World. In the state of New York in the decade preceding the World War, the excess of births over deaths represented only one third of the total increment of the population. By an act of Congress in 1921, the era of free immigration came to an end. In the future the United States will therefore become more and more dependent on the natural increase for additions to its numbers. The population will grow older, i. e., there will be in proportion more old persons and fewer young persons than in the days of unrestricted immigration, and this will exert a negative influence on the recorded death rates.

The drop in the mortality recorded in recent times has been primarily due to the prevention and control of certain diseases which formerly carried off large contingents of infants and children. At the farther end of life, the death rates have not changed materially. In fact, in certain types of mortality there has apparently been an actual increase. It is quite safe to state that most of the important diseases of childhood are theoretically preventable and that in a reasonably near future deaths from diarrhea, diphtheria, measles, scarlet fever and whooping cough will join smallpox and yellow fever in the limbo of painful memories. But the reduced volume of deaths in early ages means of necessity more deaths in middle life and old age. The abolition of physical death or even a serious effort for a marked prolongation of individual life is outside the realm of practical contemplation. If public health activities were multiplied a hundredfold, the effect on the death rate would be relatively small. What, then, is public health work to look to? Here I can think of no finer ideal than Metchnikoff's vision of a life free from bodily ailments and "after life's fitful fever" a painless descent into the sleep eternal.

From the point of view of society as a whole, sickness is more important than death. Popular experience has wisely coupled the terms health and happiness.

SICKNESS REPORT: Week ending ..... 192...

The number of *NEW CASES* attended by me during the week ending Saturday midnight was as follows:

Disease	Males	Females
Appendicitis		
Arteriosclerosis		
Cancer		
Children, diseases of (outside of reportable and those listed on this card)		
Colds		
Diabetes		
Diarrhea and enteritis (under 2 years)		
Digestive disorders, other		
Gonorrhea		
Gynecological cases:		
a. Operative		
b. Non-operative		
Heart disease		
Neuroses		
Nephritis, acute		
Nephritis, chronic (Bright's disease)		
Rheumatism:		
a. Acute rheumatic fever		
b. Chronic arthritis		
Surgical cases operative, traumatic (except gynecological)		
Syphilis		
Tonsilitis		

(Signed) .....

..... M. D.

P. O. .....

IMPORTANT Please mail report IMMEDIATELY even if NO NEW CASES of above named diseases were attended.

Fig. 1.—Report form used in morbidity survey.

2. Quoted from Francis Bacon in Dean Church's "Bacon," London, 1902, p. 90. From Spedding's translation of an unpublished "Proem" to Bacon's "Interpretation of Nature."

Health is the basic element in the life of any human group. Individuals may and have reached the heights of achievement even with a handicap of indifferent or poor health, but no social unit can function normally and preserve and develop its cultural and material treasure unless a sufficiently large proportion of its members possess the essential factor of physical health. Public health work is successful so far as it helps to bring about a higher degree of healthfulness in a community. To guide these activities and to measure their effect there must be, first of all, accurate information regarding the prevalence of ill health.

In New York and in most of the other states, the reporting by physicians of certain types of communicable disease is compulsory. These diseases represent, however, only a small fraction of all causes of sickness. The need of more complete morbidity statistics comprising other than the reportable diseases was recognized long ago. The pioneer work in this field was done by Dr. John S. Billings, author of the morbidity tables of the 1880 federal census,[1] the purpose of which was to determine "the number of [persons] who were on the first of June [1880] so sick or disabled as to be unable to pursue their ordinary occupations." Similar tables were compiled in connection with the census of 1890. Then there are "the records of a few fraternal societies, of some industrial establishments, benefit funds, the community sickness censuses of Messrs. Frankel and Dublin,[2] some data from casualty companies writing health business and a few tables of acute and chronic diseases published by the Commonwealth of Massachusetts."[3] Among later studies may be mentioned the survey of sickness in Dutchess County, N. Y.,[4] "the illness census" taken in certain districts in New York City in 1915 and 1917,[5] the sickness census of the Framingham demonstration,[6] and the studies of morbidity in Hagerstown, Md., conducted by the U. S. Public Health Service from 1921 to 1924.[7] These several investigations, differing in many respects, have in common the method of procedure: the information in all cases was obtained by the census method, directly from the persons residing in the census area, the facts in some cases being compared with the records of physicians.

GENERAL PLAN OF SURVEY

Several years ago it occurred to us in the New York State Department of Health to attempt to obtain these statistics through direct reporting by the attending physicians. In 1925 I[8] outlined the project as follows:

> We usually know what disease a patient had when he died, but we do not know what other diseases in the past had prepared the ground for the fatal attack. The entire group of diseases that are at present reportable accounts for only one quarter of all deaths, and not even all of these causes are reported completely. For instance, it is agreed that for every death from tuberculosis there are from seven to nine active cases of the disease, and yet in the entire state the number of cases reported last year was only double the number of deaths, and several counties registered more deaths than cases. Regarding the prevalence of diseases upon which no reports are required, we know very little. Here our figures are mere guesses, based on scattering data from hospitals and sanatoria, insurance companies, schools.
>
> We must have facts, not conjectures. The Division of Vital Statistics is now endeavoring to work out a plan for the collection of morbidity statistics, the success of which will depend entirely upon the measure of assistance which you gentlemen will find possible to give. Details of this scheme will be communicated to you as soon as they are perfected.

SUGGESTIONS FOR REPORTING

In using the form on the reverse side of this card, please follow the directions carefully.

Use the card daily, putting a mark for each *new* case. Thus

Disease	Males	Females
Tonsilitis	///	//

And as further new cases are seen, simply add to the check marks, thus

	////	////

The value of this record lies in its completeness; it is therefore important to send in the card weekly, even when NO new cases of the specified diseases are seen.

Under "Colds" enter bronchitis, coryza, "grippe", laryngitis, pharyngitis and similar conditions.

Under "Children, diseases of" enter all forms that are at present not reportable or shown elsewhere on the card; for instance rickets, pyelitis, malnutrition, etc.

Under "Neuroses" include conditions such as "worry", "indigestion", "neuritis", any condition that is in your opinion based on a functional disturbance of the nervous system.

Under "Surgical" enter operations for any cause, injuries due to accidents, etc.

3-1-27-6000 (21-4821)

Fig. 2.—Reverse of report form used in survey.

In coming to you with a request for cooperation I am moved by the conviction that most of us have an urge to spend some of our time in doing what we feel is worth while and for which we can expect no compensation other than the approval of our inner selves and the possible approbation of our neighbors. You will agree that the greatest need of public health work is accurate information regarding the prevalence of disease, without which a continuous constructive policy of prevention is difficult, if not impossible. It is in this field, in my opinion, that the individual health officer can make his greatest contribution to the happiness of his fellows; and it is in this field that public health work must have the guidance of vital statistics.

The plan lay dormant for more than a year when, with the cooperation of the district state health officers, it was once more brought to the attention of practicing physicians. By this time we had decided to limit ourselves to a twelve months' study in the rural part of

1. Tenth Census of the United States, volume 12, 1880.
2. Frankel, L. K., and Dublin, L. I.: Some Recent Morbidity Data: A Summary of Seven Community Sickness Surveys Made Among Policyholders of the Metropolitan Life Insurance Company, 1915 to 1917, compiled by Margaret L. Stecker, 1919.
3. Kopf, E. W.: Some Essentials of Sickness Statistics, Proc. Casualty, Actuarial and Statistical Society of America, volume 4, part 1, number 9.
4. State Charities Aid Association: Sickness in Dutchess County, N. Y., September, 1915.
5. Guilfoy, W. H.: Illness Census, Taken in Health District No. 1, Monthly Bulletin of the Department of Health of the City of New York, March, 1916. Wynne, S. W.: Second Illness Census in the Experimental Health District, ibid., November, 1916; Illness Census, ibid., January, 1918.
6. The Sickness Census, Framingham Monograph 2, Framingham Community Health and Tuberculosis Demonstration of the National Tuberculosis Association, June, 1918.
7. Sydenstricker, Edgar: Hagerstown Morbidity Studies, Pub. Health Rep. **41**: 2069 (Sept. 24), 2186 (Oct. 8) 1926; **42**: 121 (Jan. 14), 1565 (June 10), 1689 (June 24) 1927.
8. DePorte, J. V.: Read before the Annual Conference of Health Officers at Saratoga Springs, June 23, 1925.

the state and, so far as possible, to endeavor to secure the cooperation of all physicians in well defined small areas. The results of this appeal were most gratifying. By the end of 1926 we had gained the active interest of 150 physicians, and the survey commenced the first week of January, 1927.

THE SICKNESS REPORT FORM

The report form used in the survey (fig. 1) was, of course, far from perfect. We were guided in its preparation by two basic considerations—brevity and simplicity. The list of causes had to be brief, since we could not ask a busy rural practitioner to give the time that would be necessary to fill out a blank containing all of even the more important types of sickness. For the same reason we limited the subdivisions to sex only, making no provision for age, occupation and other facts relating to the personal history of the patient or for the duration and degree of severity of the illness. One proposed and very desirable heading, "all other types of diseases," which would have given us a picture of the entire morbidity situation, had to be omitted because some of the physicians preferred not to disclose the general extent of their practice.

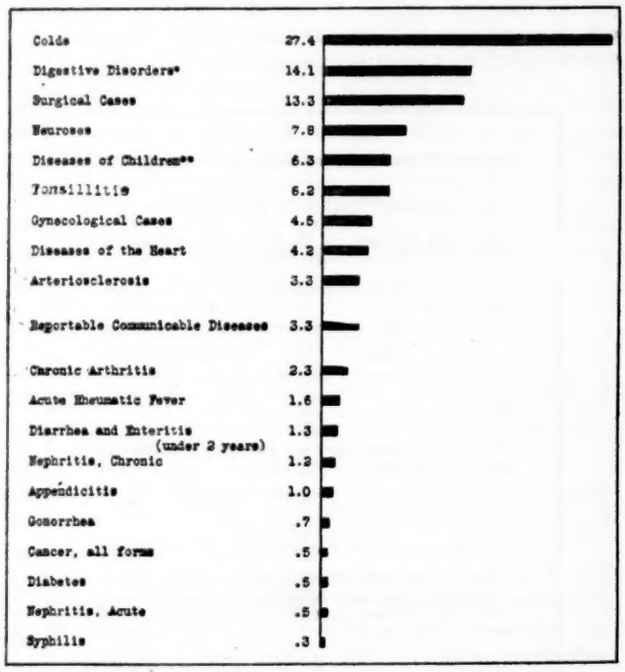

Fig. 3.—Percentage distribution of all cases of sickness: * except diarrhea and enteritis under 2 years of age; ** except communicable or others shown in this diagram.

The physicians were asked to report only new cases of the various types of sickness indicated on the list and not new patients. In other words, if John Smith called on a physician and the latter diagnosed his condition as an ordinary cold, he entered on the card, in the column of males, one case of cold. If a few weeks later the physician found that the same John Smith suffered an attack of appendicitis, he entered on the card one case of appendicitis. The several explicit rubrics were to include all types of disease outlined under the corresponding heads in the International List of Causes of Death. Thus, "cancer" was to comprise numbers 43-49 of the international list; "heart disease," numbers 87-90, and so on. The term "children" related to persons under 16 years of age. Explanation of the other multifarious titles, together with certain suggestions, was given on the reverse of the card (fig. 2). The physicians were furnished stamped and addressed envelops in which to mail the cards to the division of vital statistics each week.

Our list included gonorrhea and syphilis because reports on these diseases are ordinarily secured through laboratories and not directly from physicians. In addition to the types of sickness shown on the report form, we also tabulated the cases of sickness reported by the participating physicians to the division of communicable diseases. Whenever a report contained an ambiguous or contradictory entry, or if a physician was in doubt about reporting or not reporting a case in his practice, the necessary adjustments were made, either by correspondence or through the assistance of the district state health officers.

The districts represented in the study were scattered throughout thirty-three counties, the largest village having a population of almost 6,000, the others being small villages or townships not containing incorporated places of any size.

In the course of the year forty-three physicians were obliged, for one reason or another, to discontinue their reports. We have, therefore, complete returns for the entire fifty-two weeks of the year 1927 from 107 physicians. The population served by these physicians, according to the best available information, numbered about 101,000, or 944 persons for each physician. The average number of persons to each physician in the entire state of New York, exclusive of New York City, Jan. 1, 1928, was 841. Since in rural districts the ratio is higher than in cities, our estimate appears quite raesonable.

GENERAL RESULTS

A summary of our results is presented in table 1. The cases of sickness totaled 98,069. It is possible that this figure contains a number of repetitions; in other words, that some patients were treated for the same condition by more than one physician. The practice of changing physicians is, however, not common in rural territory and the element of error introduced by it is probably inconsiderable. The total of recorded cases was, roughly, equal to our estimated population; the cases, therefore, averaged one for each person annually. The fact that our estimated population is practically 100,000 permits us to interpret the figures shown in our detailed tables in terms of rates. In other words, if the cases of a certain disease numbered 200, the rate of sickness from that disease may be taken, roughly, as 200 per hundred thousand of population.

TABLE 1.—*Cases of All Reportable and Nonreportable Diseases, by Sex*

	Total		Male		Female	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total	98,069	100.0	46,096	100.0	51,973	100.0
Nonreportable diseases	94,857	96.7	44,478	96.5	51,379	96.9
Reportable communicable diseases	3,212	3.3	1,618	3.5	1,594	3.1

The total number of cases of sickness reported among women exceeded the total for men by 13 per cent. While this fact, in general, corresponds to the common observation of the greater prevalence of sickness among women, we cannot say anything about the indicated disparity without definite knowledge of the relative numbers of men and women in our territory, since a portion of the excess may have been due to a greater proportion of women in the population.

Cases of communicable diseases that are reportable under the provisions of the New York State Sanitary Code numbered 3,212, or 3.3 per cent of the total cases of all types. The proportion among males was 3.5 per cent; among females it was somewhat lower, 3.1 per cent.

Figure 3 shows the relative prevalence of the reportable communicable diseases as compared with the specified types of the nonreportable diseases. Here it may be observed that cases of nine groups of the latter were more prevalent than the sum of all reportable communicable diseases.

NONREPORTABLE DISEASES

Table 2 shows in detail the distribution of the nonreportable diseases.

The leading cause was colds, with a total of almost 27,000 cases, or 28.3 per cent of all cases. Digestive disorders were responsible for 14.6 per cent, followed by all types of surgical cases (except gynecologic), 13.7 per cent. Thus, more than one half (56.6 per cent) of all causes of sickness were listed under these three heads.

The proportions which the various types of sickness formed of the total number of cases reported among males and females were, in most cases, dissimilar. The differences were especially marked under surgical cases, which represented one fifth of all cases among males as compared with only 8.5 per cent among females; cases of neuroses (this term in our survey comprised all types of sickness that were in the opinion of the attending physician based on a functional disturbance of the nervous system) were twice as prevalent among women as compared with the ratio among men (10.4 and 5.4 per cent, respectively).

TABLE 2.—*Cases and Percentage Distribution of Nonreportable Diseases, by Sex*

Cause of Sickness	Total		Male		Female	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
All nonreportable diseases	94,857	100.0	44,478	100.0	50,379	100.0
Colds	26,858	28.3	13,265	29.8	13,593	27.0
Digestive disorders (other than diarrhea and enteritis, under 2 years)	13,825	14.6	6,254	14.1	7,571	15.0
Surgical cases—operative, traumatic (except gynecologic)	13,031	13.7	8,761	19.7	4,270	8.5
Neuroses	7,635	8.0	2,392	5.4	5,243	10.4
Diseases of children (except communicable and and those listed in this table)	6,173	6.5	2,974	6.7	3,199	6.3
Tonsillitis	6,038	6.4	2,917	6.6	3,121	6.2
Gynecologic cases	4,422	4.7	.....	...	4,422	8.8
Operative	751	0.8	.....	...	751	1.5
Nonoperative	3,671	3.9	.....	...	3,671	7.3
Heart disease	4,123	4.3	1,951	4.4	2,172	4.3
Arteriosclerosis	3,234	3.4	1,352	3.0	1,882	3.7
Chronic arthritis	2,240	2.4	1,092	2.5	1,148	2.3
Acute rheumatic fever	1,543	1.6	789	1.8	754	1.5
Diarrhea and enteritis (under 2 years)	1,308	1.4	640	1.4	668	1.3
Chronic interstitial nephritis (Bright's disease)	1,134	1.2	482	1.1	652	1.3
Appendicitis	966	1.0	453	1.0	513	1.0
Gonorrhea	644	0.7	521	1.2	123	0.2
Diabetes	505	0.5	173	0.4	332	0.7
Cancer (all forms)	464	0.5	156	0.4	308	0.6
Acute nephritis	450	0.5	165	0.4	285	0.6
Syphilis	264	0.3	141	0.3	123	0.2

The number of cases of gonorrhea among men (521) was more than four times that among women (123), the corresponding percentages being 1.2 and 0.2. In considering these figures, it must be remembered, however, that many cases of gonorrhea among women were undoubtedly listed under the head of gynecologic conditions.

REPORTABLE DISEASES

Table 3 lists the communicable diseases reported by the cooperating physicians.

The leading disease was measles, with 37.4 per cent of all cases, followed by chickenpox, 14 per cent, and whooping cough, 13.4 per cent. If to this list are added

TABLE 3.—*Cases and Percentage Distribution of Reportable Communicable Diseases, by Sex*

Cause of Sickness	Total		Male		Female	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
All reportable communicable diseases	3,212	100.0	1,618	100.0	1,594	100.0
Measles	1,201	37.4	607	37.5	594	37.3
Chickenpox	450	14.0	224	13.8	226	14.2
Whooping cough	432	13.4	221	13.7	211	13.2
Scarlet fever	306	9.5	140	8.7	166	10.4
Pneumonia (all forms)	260	8.1	138	8.5	122	7.7
Broncho or lobular	119	3.7	55	3.4	64	4.0
Acute lobar	131	4.1	78	4.8	53	3.3
Unspecified	10	0.3	5	0.3	5	0.3
Mumps	222	6.9	127	7.8	95	6.0
German measles	114	3.5	45	2.8	69	4.3
Tuberculosis (all forms)	100	3.1	47	2.9	53	3.3
Pulmonary and acute miliary	80	2.5	32	2.0	48	3.0
Other forms	20	0.6	15	0.9	5	0.3
Diphtheria (membranous croup)	49	1.5	26	1.6	23	1.4
Poliomyelitis, acute anterior (infantile paralysis)	18	0.6	11	0.7	7	0.4
Smallpox	16	0.5	10	0.6	6	0.4
Erysipelas	14	0.4	8	0.5	6	0.4
Vincent's angina	10	0.3	5	0.3	5	0.3
Epidemic or streptococcic (septic) sore throat	9	0.3	5	0.3	4	0.3
Typhoid (except paratyphoid)	7	0.2	3	0.2	4	0.3
Epidemic encephalitis	3	0.1	1	0.1	2	0.1
Epidemic cerebrospinal meningitis	1	—*	—	—	1	0.1

* Less than 1 per cent.

syphilis and gonorrhea, which are not reportable, it is found that, next to measles, gonorrhea was the most prevalent communicable disease in the rural territory represented in the survey. Syphilis falls into sixth place, taking precedence over pneumonia and tuberculosis.

The percentage distribution of the several causes of sickness among males and females was quite similar. Cases of scarlet fever, German measles and tuberculosis were somewhat more numerous among females, while among males there was relatively a greater number of cases of whooping cough, mumps and pneumonia.

Seasonal Distribution of Morbidity.—When the returns for the four quarters of the year are expressed in terms of the total number of cases reported for the entire twelve month period, it is found that the greatest amount of sickness, 28.6 per cent, occurred during the three winter months and the least amount, 22.9 per cent, during the third quarter. The distribution for the two sexes differed slightly: among females the maximum during the first quarter and the minimum during the third quarter were somewhat more accentuated than among males.

The peak of cases of nonreportable diseases was recorded during the first quarter of the year, almost entirely because of the greater prevalence of colds. Among the individual causes we note that almost two fifths of the cases of colds were recorded during the first quarter, while during the third quarter these cases were only 15 per cent of the total for the year. The distribution of cases of tonsillitis was similar to that of colds, although the peak was not accentuated to the same degree, the maximum during the first quarter representing 31.9 per cent and the minimum during the third quarter 20.1 per cent of all cases. Of the outstanding differences in the seasonal distribution of the

other groups of causes, the following may be mentioned: In the group of children's diseases, other than reportable and those listed on the form, the peak, 27 per cent, was recorded during the last quarter of the year and the minimum, 22.8 per cent, during the second quarter. Diarrhea and enteritis, under 2 years, had a peak during the third quarter of 43.6, and a minimum during the first two quarters of 15.5 and 15.6 per cent, respectively.

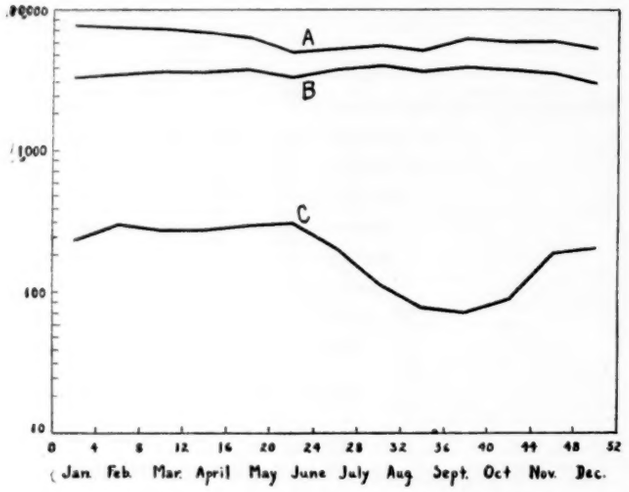

Fig. 4.—Cases of all reportable and nonreportable diseases by four week periods: *A*, all nonreportable diseases; *B*, all nonreportable diseases except colds, diarrhea and enteritis (under 2 years) and tonsillitis; *C*, all reportable communicable diseases.

The seasonal distribution of all other digestive disorders was similar to that of diarrhea, except that the high and low points differed less than in the former group, the peak, 27.2 per cent, being recorded in the third quarter and the minimum, 23.8, in the second quarter. The group of surgical cases showed a marked peak in the third quarter, 31.7, and a minimum in the first quarter, 19.2. This group embraces all cases in which surgical treatment was required, and the peak in the summer months undoubtedly reflects the increased number of

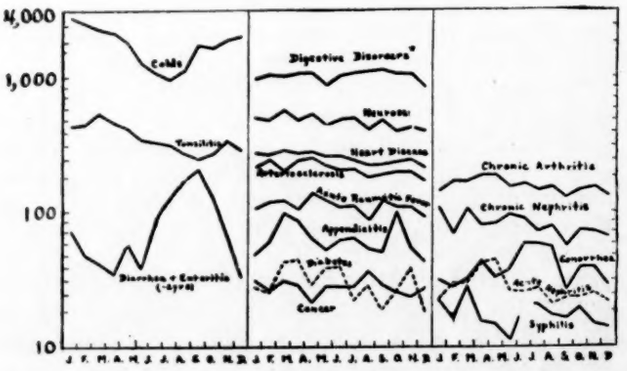

Fig. 5.—Cases of specified nonreportable diseases by four week periods: * except diarrhea and enteritis under 2 years.

accidents during that period. Gonorrhea had a peak in the summer months of 31.4 per cent, and a low point of 20.2 per cent in the first quarter. In the group of gynecologic cases containing undoubtedly a large proportion of cases of gonorrhea, there was also reported a peak in the third quarter of the year of 27.2 per cent, with a minimum of 23.6 per cent during the second quarter.

The seasonal variation of the entire group of reportable communicable diseases was strikingly more pronounced than that of the nonreportable group. More than one third of all cases, or 37.5 per cent, were recorded during the second quarter, while the minimum in the summer months was less than a third of this proportion, 11.3 per cent.

To analyze the seasonal changes in greater detail we have plotted the percentage distribution of cases of the nonreportable and of the reportable diseases by four-week periods. Curve A in figure 4 shows the seasonal variations of the entire group of the nonreportable diseases, the cases numbering 94,857. Here a peak was noted during the first four-week period, the month of January, when the number of cases represented 9 per cent of the annual total. In the following four-week periods the relative number of cases declined, reaching a minimum of 6.6 per cent during the sixth four-week period (May 22-June 18).

When the important component parts of this large group of cases are considered, there is, first of all, the heterogeneous group of "colds" representing 28.3 per

TABLE 4.—*Percentage Distribution of Cases of Nonreportable and of All Reportable Communicable Diseases, by Quarters of the Year*

Cause of Sickness	Total			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
All nonreportable diseases	28.5	24.2	23.3	24.1
Colds	37.8	21.8	15.3	25.1
Digestive disorders (other than diarrhea and enteritis, under 2 years)	24.4	23.8	27.2	24.6
Surgical cases — operative, traumatic (except gynecologic)	19.2	24.5	31.7	24.6
Neuroses	26.9	25.9	24.8	22.4
Diseases of children (except communicable and those listed in this table)	24.6	22.8	25.6	27.0
Tonsillitis	31.9	27.5	20.1	20.5
Gynecologic cases	25.0	23.6	27.2	24.3
Operative	28.1	25.6	26.9	19.4
Nonoperative	24.3	23 2	27.2	25.3
Heart disease	27.8	26.9	22.9	22.3
Arteriosclerosis	27.0	29.2	22.3	21.6
Chronic arthritis	26.0	28.1	23.1	22.8
Acute rheumatic fever	26.3	26.1	24.3	23.3
Diarrhea and enteritis (under 2 years)	15.5	15.6	43.6	25.3
Chronic interstitial nephritis (Bright's disease)	28.3	25.8	23.5	22.4
Appendicitis	26.7	25.6	22.9	24.8
Gonorrhea	20.2	26.1	31.4	22.4
Diabetes	26.3	32.3	19.2	22.2
Cancer (all forms)	26.5	23.1	27.8	22.6
Acute nephritis	26.0	32.2	21.1	20.7
Syphilis	32.2	21.6	24.2	22.0
All reportable communicable diseases	33.6	37.5	11.3	17.7

cent of all the nonreportable diseases. This group has a very marked seasonal variation (fig. 5), the maximum proportion of cases (13.3 per cent) being reported during the first four-week period and the minimum (3.7) in the eighth four-week period (July 17-August 13). Two other types of sickness exhibit definite seasonal changes—tonsillitis and diarrhea and enteritis under 2 years (fig. 5). The curve for tonsillitis is quite like that of colds, while the curve for diarrhea and enteritis shows a peak during the summer months with low points in the fall and winter. When the cases of the three causes mentioned are subtracted from the total, the residual cases do not exhibit any definite trend (fig. 4 *B*).

The group of reportable diseases has a definite seasonal trend, with high points in the late fall, winter and early spring, and a trough in the summer and early fall (fig. 4 *C*).

The curves of the individual important groups of nonreportable diseases other than those mentioned earlier do not exhibit any marked seasonal changes (fig. 5). It is interesting to note the similarity in the curves for heart disease and arteriosclerosis. This is

very likely due to the occasional difficulty of placing the diagnosis under one or the other of these two heads; in other words, some conditions entered under the rubric arteriosclerosis could probably, with equal justice, be diagnosed as a type of heart disease.

Figure 6 pictures the seasonal variations of the several individual groups of reportable communicable diseases. They all have a definite maximum point in the winter months, with the exception of whooping cough, in which a second peak occurred in the summer.

Morbidity in Villages and Towns.—We have tabulated our results under the heads of "villages" and "towns," the former term including incorporated places of any size, the latter referring to the unincorporated territory. The population of the villages ranged from 125 to 5,907. The cases in the group of villages numbered 82,518 and were reported by eighty-three physicians, averaging 994 cases reported by a physician. In the rest of the rural territory 15,551 cases were reported by twenty-four physicians, or an average of 648 cases for one physician. In the entire area represented in our survey, the cases averaged 917 for a physician. Table 5 shows the number of cases and the percentage distribution according to sex in these two divisions, villages and towns. The percentage distribution in general showed no material differences, with the following exceptions: reportable communicable diseases represented 3.4 per cent of all cases in the villages as compared with only 2.6 per cent in the towns. Among the

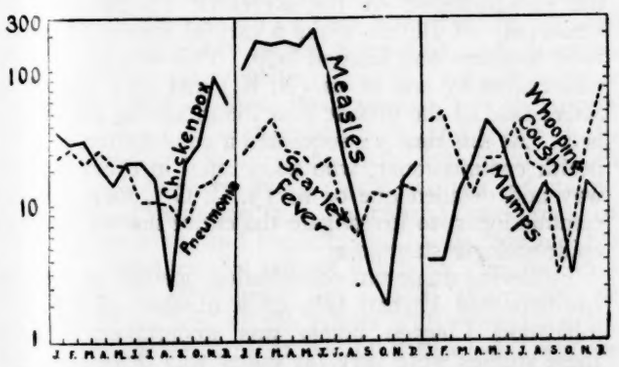

Fig. 6.—Cases of specified reportable diseases by four week periods.

nonreportable diseases it is noted that the towns had a larger proportion of surgical cases (15.1 per cent; the villages, 12.9) and a smaller proportion of cases of digestive disorders (13.0 as compared with 14.3 per cent).

Percentage Distribution of Morbidity and Mortality by Cause.—An interesting comparison is that of the relative morbidity and mortality from the various causes. Here we are obliged to employ the mortality figures for the entire state, exclusive of New York City, for the year of the survey, 1927, because unfortunately the mortality experience of the population represented in our survey was not available.

Since several of the groups of causes were rather too comprehensive, the mortality caused by these diseases could not be evaluated. These groups were diseases of children (outside of reportable and those listed on the report form), digestive disorders (other than diarrhea and enteritis under 2 years), neuroses, and surgical conditions. Deaths in the upstate territory ascribed to all other types of sickness listed on the report card, and also to the entire group of reportable communicable diseases, numbered 46,349, representing 65.7 per cent of the deaths from all causes.

The percentages of morbidity and mortality from the specified causes are given in table 6. Colds, including tonsillitis, were the leading cause of sickness, with 57.3 per cent of all cases of the abridged group of diseases; the mortality from this cause represented only 3.2 per cent of the total. The entire group of the reportable communicable diseases was responsible for 5.6 per cent

TABLE 5.—*Number and Percentage Distribution of Cases of Nonreportable and of All Reportable Communicable Diseases, by Villages and Towns*

Cause of Sickness	Villages		Towns	
	Number	Per Cent	Number	Per Cent
All causes included in morbidity survey..	82,518	100.0	15,551	100.0
All nonreportable diseases.....	79,705	96.6	15,152	97.4
Colds.....	22,595	27.4	4,263	27.4
Digestive disorders.....	11,803	14.3	2,022	13.0
Surgical cases (except gynecologic).....	10,678	12.9	2,353	15.1
Neuroses.....	6,460	7.8	1,175	7.6
Diseases of children (except communicable and those listed in this table).....	5,215	6.4	928	6.0
Tonsillitis.....	4,954	6.0	1,084	7.0
Gynecologic cases.....	3,752	4.5	670	4.3
Operative.....	545	0.7	206	1.3
Nonoperative.....	3,207	3.9	464	3.0
Diseases of the heart.....	3,453	4.2	670	4.3
Arteriosclerosis.....	2,745	3.3	489	3.1
Chronic arthritis.....	1,934	2.3	306	2.0
Acute rheumatic fever.....	1,305	1.6	238	1.5
Diarrhea and enteritis (under 2 years)....	1,128	1.4	180	1.2
Chronic nephritis.....	878	1.1	256	1.6
Appendicitis.....	791	1.0	175	1.1
Gonorrhea.....	560	0.7	84	0.5
Cancer (all forms).....	395	0.5	69	0.4
Diabetes.....	441	0.5	64	0.4
Acute nephritis.....	367	0.4	83	0.5
Syphilis.....	221	0.3	43	0.3
All reportable communicable diseases....	2,813	3.4	399	2.6

of all cases of sickness and four times that proportion (22.4 per cent) of deaths. Somewhat more than four fifths (81.2 per cent) of all deaths shown in the table were due to the five leading causes of death—diseases of the heart, cancer, chronic nephritis, pneumonia and

TABLE 6.—*Percentage Distribution of Cases in Morbidity Survey and of Mortality in the State, Exclusive of New York City, from Specified Nonreportable and from All Reportable Communicable Diseases*

Causes of Sickness and Death	Percentage of Cases Reported in Morbidity Survey*	Percentage of Deaths in the State Exclusive of New York City
All causes included in morbidity survey*.....	100.0	100.0
All nonreportable diseases.....	94.4	77.6
Colds, including tonsillitis.....	57.3	3.2
Gynecologic cases.....	7.7	0.5
Heart disease.....	7.2	34.0
Arteriosclerosis.....	5.6	4.3
Chronic arthritis.....	3.9	0.2
Acute rheumatic fever.....	2.7	0.3
Diarrhea and enteritis (under 2 years).....	2.3	1.6
Chronic interstitial nephritis (Bright's disease).....	2.0	13.0
Appendicitis.....	1.7	1.5
Gonorrhea.....	1.1	...
Diabetes.....	0.9	2.9
Cancer (all forms).....	0.8	14.7
Acute nephritis.....	0.8	0.6
Syphilis.....	0.5	0.7
All reported communicable diseases.....	5.6	22.4

* Exclusive of diseases of children, digestive disorders (other than diarrhea and enteritis under 2 years), neuroses and surgical cases.

tuberculosis, while the corresponding cases of sickness represented barely one tenth (10.7 per cent) of the total.

Although the territory from which the mortality figures were drawn is greater in size and more diverse in character than the rural area of our survey, the main facts brought out in the preceding paragraph are

undoubtedly true also for the more limited region. We are therefore on solid ground in stating that the diseases responsible for the bulk of mortality play a comparatively inconspicuous rôle among the causes of prevailing ill health.

CONCLUSIONS

The morbidity survey of a considerable section of rural New York has accomplished, I believe, two useful purposes. It has given us an indication of the absolute and relative prevalence of certain important causes of illness, regarding which our knowledge is quite scanty. The survey has also demonstrated the numerically unimportant position of the reportable communicable diseases. Even if we were to add the nonreportable diseases which come within the field of organized public health activities, as diarrhea and enteritis (under 2 years), syphilis and gonorrhea, the cases of the enlarged group of diseases would equal only 5.6 per cent of all causes of illness represented in the survey.

The function of public and private health agencies is the control and prevention of sickness. The experiment made by the New York State Department of Health to secure sickness statistics for a large general group of the population through direct reporting by the attending physicians leads us to conclude that greater attention should be given by public health authorities and the practicing medical profession to the nonreportable diseases which are responsible for most of the prevailing ill health.

A SURVEY OF AMEBIC DYSENTERY IN CHICAGO*

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SAN FRANCISCO

INTRODUCTION

By Charles Spencer Williamson

The stimulus for the survey of which these reports are a summary lay in the fact that I had occasion to see in private practice within a very short time several cases of amebic dysentery occurring under rather unusual conditions.

The first patient had a very large hepatic abscess, which had been opened and drained, and the patient was steadily going down hill. It was stated that examinations of the pus had been made with negative results. I saw the patient after the abscess had been draining for a long time, and on a personal examination of the pus, which was of the typical anchovy sauce type, found typical endamebas in large numbers. Vigorous treatment with emetine caused a remarkable clearing up of the entire process in a short time. The patient was living in a downtown hotel.

A short time afterward another patient was seen, a middle aged man, living in the same hotel. This patient had a peculiar mass in the right quadrant, the nature of which was doubtful, but as the patient had a severe diarrhea, a stool examination was made, which disclosed myriads of amebas. The patient was immediately taken to the hospital and operated on. A large retrocecal abscess due to a perforation of the bowel was found, and in the pus from the abscess amebas were abundant.

The third patient was an Italian, who had, however, been in this country for many years and had always worked at the same job. His work was in the same building in which the hotel was located. It is interesting to note that this patient had been treated several times in a well known hospital for colitis, and a fatal prognosis had been made. The stools were of the typical bloody, mucoid type, and amebas were present in enormous numbers. In spite of the long duration of his illness, a perfect recovery was made under treatment with emetine.

The fourth patient was not seen by me, but in describing the other three cases to a colleague in pathology, I learned that another case had occurred in the hotel next door to the one mentioned, and that the patient had died without a diagnosis, the autopsy showing a foudroyant amebic dysentery.

The fifth patient was a traveling salesman, who spent a couple of months of each year at the hotel in question and when first seen had been residing there for several weeks.

At this point it could hardly be doubted that it was not merely fortuitous that these cases of dysentery should appear in such quick succession in one neighborhood, and a carrier among the food handlers seemed the most plausible explanation.

A meeting was arranged with the owners of the hotel, and when the matter was laid before them they responded quickly and heartily to the suggestion that the parasitologist of the Research Hospital of the University of Illinois make a careful survey of all the food handlers and kitchen help. This was accordingly undertaken by one of us (B. K.) and very shortly an active case of the disease was found among the kitchen help. At this time we requested a consultation with the health commissioner, who cooperated in every possible way and detailed one of us (J. C. G.), then assistant commissioner, to investigate the entire matter from the epidemiologic standpoint.

Following numerous consultations a study of the food handlers and kitchen help of a number of the more important Chicago hotels was undertaken. Before these studies were very far under way three additional private cases were seen by me, but in these three no connection with the previous cases could be made out. A detailed report of these investigations follows, together with a study of the incidence of endamebas in the population of Chicago at large.

In order to insure appropriate treatment for the carriers who were found, the commissioner ordered all such patients to the Research Hospital, where they were kept until freed from infestation.

The treatment was as follows: Emetine bismuth iodide, 3 grains (0.2 Gm.) daily, 1 grain (0.065 Gm.) being given after each meal, and emetine hydrochloride, one-half grain (0.03 Gm.) twice daily, hypodermically, for ten days. In some cases powdered ipecac was given through the duodenal tube. Soap suds enemas were followed by quinine irrigations (1:5,000 solution, gradually increased to 1:1,000) daily.

METHOD OF STUDY

By Bertha Kaplan

The examinations were carried out at the hotel. A room with a bath was obtained, and specimens were collected (by giving a glycerin suppository whenever necessary) in paraffined containers of 60 cc. capacity and examined immediately, one person being taken at a time. The greatest care was exercised in making the

* From the Department of Medicine, University of Illinois College of Medicine, and the Department of Health, City of Chicago.

microscopic examinations for worms, ova and intestinal protozoa, with a special view to finding *Endameba histolytica* cysts as well as living forms. The work was done on the basis of two examinations per capita. All smears were made of the proper opacity ("reading opacity"), warm water being used for some smears, iodine (5 per cent aqueous solution of potassium iodide saturated with iodine and diluted with equal parts of distilled water before using) for others, and eosin (1:1,000 aqueous) preparations. The water preparations showed living forms as well as encysted protozoa, ova and worms. In the eosin preparations the living as well as the encysted forms remained as unstained refractile bodies, while everything else including the dead cysts stained pink. The iodine stained the encysted forms, making possible cytologic study.

This survey at the place where the cases of amebic dysentery occurred resulted in the uncovering of one case and two carriers of *Endameba histolytica*. Of the carriers showing encysted *Endameba histolytica*, one was a pantry girl and the other a vegetable girl. The clinical case occurred in a night cook (Assyrian) who had been ill with amebic dysentery for a number of weeks and had been treated by an Assyrian doctor who failed to report the case to the health department. This cook, being on night duty, when the work is not very heavy, was able to pursue his duties most of the time, having stayed out only two or three days with the excuse that he was suffering with "stomach trouble."

The history obtained from this cook was not entirely satisfactory; he failed to give a history of having had amebic dysentery before but stated that he had always been in rather poor health. It is not possible to state definitely which of these three persons was the source of infection. Our own experiments and those of the English workers Walker and Sellards and of Dobell have shown that the living forms are not infectious; the living forms produce the clinical symptoms of amebic dysentery, and the encysted forms transmit the disease. Whether this patient had been a healthy carrier prior to developing the clinical symptoms, or whether he as well as the others with clinical amebic dysentery were victims of one or both of the carriers of encysted *Endameba histolytica* cannot be ascertained.

O'Conner and Wenyon in their work in Egypt found the largest number of carriers of amebic dysentery among the food handlers and prisoners. This may be explained on the basis of insanitary conditions of the soil as well as of the institutions. Food handlers working with vegetables coming from contaminated soil become infected, after which dissemination is very easy by careless workers and by means of flies. With food handlers in this country conditions are different. Most, if not all, of the vegetables come from soil free from amebas; but, should there be even one carrier in a kitchen this furnishes a ready means of disseminating the disease.

Most of the patients at Cook County Hospital gave a history of having worked on the railroad in the North or in the South and of having used stagnant water for drinking purposes; two of the patients had worked at the stockyards and two were ex-sailors, one coming from Egypt and the other having been in India. Some of the patients came from the South, and several stated that they had never been outside the city.

Among the 1,148 food handlers the protozoan infections were distributed as shown in table 1.

In these 1,148 persons, metazoan infections were found as follows: Seven showed ova of *Trichuris trichiura;* three showed ova and segments of *Taenia saginata;* three showed ova of *Necator americanus* (one, a Mexican, having been here only six months, and two Filipinos), one showed *Ascaris lumbricoides* ova and another showed *Strongyloides stercoralis* in large numbers.

The number of flagellates, worms and ova might have been increased by administering salts, because most of the specimens obtained were from the lower bowel, the region of the ameba, whereas most worms and the flagellates are found in the small intestine. The number of specimens showing ova and worms might also have been enhanced by using concentration methods, but that was not convenient and since the important point at issue was the uncovering of cases of amebic infestation and carriers we were not so much concerned with the others.

The distribution of the carriers and cases of *Endameba histolytica* was as follows: The active cases were found in a night cook at the place where the epidemic occurred, and in a coffee man, a young man who came from Louisiana and who had periodic attacks all the time that he was up here, getting enough treatment for temporary abatement of the diarrheal symptoms. This patient shifted from one hotel to another, and thus kept a few months in advance of us, as we were examining the help at the various hotels, until we finally found him in the last hotel in which examinations were made.

TABLE 1.—*Protozoa Found in the One Thousand One Hundred and Forty-Eight Food Handlers*

Types of Protozoa	Number of Cases	Percentage
Endameba histolytica	27 Carriers (2 active cases)	2.35
Endameba coli	220	19.16
Endolimax nana	23	2
Iodameba bütschlii	61	5.31
Trichomonas intestinalis	21	1.82
Chilomastix mesnili	22	1.91
Giardia intestinalis	75	6.53

He was immediately sent to the hospital, where he was kept until completely cured, as shown by proctoscopic examinations and repeated examinations of specimens of feces. The carriers were one vegetable salad girl, five fruit pantry girls, four cooks, three cold meat handlers, two bakers, one assistant fry cook, one waffle maker, one colored steward's assistant, one buffet man, three dishwashers, one toast maker and three pantry men.

Immediately on the discovery of a carrier or case, the steward was notified and the person was sent to the hospital and kept there until proved to be free from the organisms, which was done as follows: A series of treatments was given, followed by a three day period of rest without treatment, after which three negative stools on successive days were required before the patient was dismissed from the hospital. Failure to obtain three negative stools was followed by another series of treatments, a period of rest without treatment and three negative stools on successive days.

INCIDENCE OF PARASITIC INFECTIONS AMONG THREE HUNDRED AND EIGHTY NORMAL PERSONS

Similarly 380 persons were examined at the rate of 1.22 examinations per capita, the concentration method being used in addition to the method already described with the aim of uncovering as many cases of infection with eggs and worms as possible. These specimens were obtained largely from patients at the University of Illinois Research Hospital Dispensary.

The examinations gave the results listed in table 2.

TABLE 2.—*Protozoan and Metazoan Infections in Three Hundred and Eighty Normal Persons*

Types of Parasites	Number of Cases	Percentage
Endameba histolytica	4 (2 active cases)	1.05
Endameba coli	31	8.10
Endolimax nana	3	0.78
Iodameba bütschlii	7	1.66
Trichomonas intestinalis	4	1.05
Giardia intestinalis	7	1.66
Chilomastix mesnili	6	1.57
Trichuris trichiura	4	1.05
Oxyuris vermicularis	2	0.52
Taenia saginata	2	0.52

COMMENT

The results of various workers in protozoology as well as our own work indicate that amebic dysentery is not limited to the tropics and subtropics. The present increase of amebic dysentery may be due to a number of factors, including (1) the greater stress being placed on medical zoology in the college curriculum; (2) improved clinical laboratory examinations; (3) increased migration from the Southern to the Northern states, and (4) the reporting of these cases as a stimulus toward more thorough examinations of diarrheal stools.

Stools of persons with amebic dysentery can often be recognized macroscopically as well as microscopically. Amebic dysentery stools are bloody mucoid, free from macrophages and pus unless the case is of long standing, when secondary infections set in. On the other hand, stools showing a great deal of pus, rich in cellular exudate, some mucus and only now and then streaks of blood should be looked on with suspicion as being bacillary in nature. In all such cases bacteriologic examinations for dysentery bacilli should be made without any delay. Failure to find dysentery bacilli in cases of long standing does not rule out bacillary dysentery.

Extreme care should be exercised in examining freshly obtained specimens (preferably with a rectal tube or protoscopically) for amebas. This should be done immediately on discovering the symptoms and before treatment of the patient is begun. After specific treatment the organisms begin to disintegrate, making it difficult or even impossible to determine them. Occasionally under such conditions stained preparations are of assistance. However, all convalescents from amebic dysentery should be examined repeatedly for encysted *Endameba histolytica*. Periodic examinations should be made of the stools after the patients are discharged from the hospital.

EPIDEMIOLOGY FOR CHICAGO, 1926-1927, INCLUSIVE

By J. C. Geiger

This investigation represents the first attempt to study epidemiologically cases of amebic dysentery reported to the Chicago Department of Health. The data are not complete even for the years under discussion since, as shown in table 3, some cases probably have never been fully reported. Likewise, in the assembled data there are noticeable gaps in the accumulated evidence due in part to the time that has elapsed since many of the cases were investigated. It is reasonable to assume, however, that this study did stimulate reporting by physicians and as a result there is presented an apparently marked increased endemicity for Chicago. Naturally, this increase is of more than passing local interest, as it fully demonstrates the presence of the disease to a significant extent.

It must be appreciated, however, that this increase may be entirely due to recent careful investigation rather than to an unusual local parasitic index. Moreover, the extent to which the presence of amebic dysentery has been recognized in Chicago fully justifies this study and the plea to local practitioners to regard with suspicion all cases of chronic diarrhea and to confirm the clinical diagnosis of dysentery by suitable laboratory examinations.

Furthermore, once the local endemic index for amebic dysentery has been established by the reporting and laboratory confirmation of cases over a known period of years, the health official may determine how valuable the follow-up work, so necessary in such so-called imported diseases, has been in the elimination of possible foci of infection.

TABLE 3.—*Dysentery in Chicago*

Year	Cases	Deaths
AMEBIC		
1921	..	4
1922	..	2
1923	..	3
1924	..	6
1925	..	4
1926	63	11
1927	28*	3†
BACILLARY		
1921	..	1
1922	..	2
1923	..	1
1924	..	1
1925	..	2
1926	4	0
1927	3*	0†
UNSPECIFIED		
1921	..	2
1922	..	0
1923	..	0
1924	..	0
1925	..	0
1926	0	2
1927	0*	0†
TOTAL		
1921	..	7
1922	..	4
1923	..	4
1924	..	7
1925	..	6
1926	67	13
1927	31	3†

* Ten months' data.
† Nine months' data.

SUMMARY

The number of cases in this study (150) is doubtfully exact. Particularly is this to be considered true because of the comparative importance of table 3. It will be noted that in the years 1921, 1922, 1923, 1924 and 1925, though deaths from both amebic and bacillary dysentery are recorded, no cases are reported. The logical reason for this phenomenon is that probably physicians never regarded either disease as reportable except in 1926 and 1927, when this investigation awakened anew their interest, at least in amebic dysentery, from a public health standpoint.

It is exceedingly important to note that practically the same number of deaths from amebic dysentery were reported for each year from 1921 to 1927, or a yearly average of 3.6 each, the exception being in 1926, when eleven deaths occurred. In the 150 cases recorded here there were eighteen deaths, or a percentage case mortality of twelve. In addition, twenty-nine carriers (two active cases) were discovered in the course of our investigation of food handlers in large local hotels.

Likewise, in this series (150) of cases, 106 were men, eighty-nine were women and five were children under

15 years of age. Eighty-three cases were verified by laboratory data, or a percentage of 55. This percentage of positive observations (55), however, has been mainly due to efforts of the past year to have corroborative laboratory observations in every case reported. It was interesting to note that of some of the epidemiologic factors brought to light, foreign travel figured in only fifteen patients, and two of these were born in foreign countries. An additional five were born in states of the United States bordering on the Gulf of Mexico. In a family of three, one of whom was a child, the possible etiologic factor was stated to be foreign missionary work. In the carriers discovered in the local hotel survey, however, eighteen, or approximately 64 per cent, were of foreign birth. In the remainder (ten) it is most interesting to note that these gave their place of birth as the United States and, in the majority, Chicago.

When occupation was considered as a possible epidemiologic factor, the investigation revealed a wide range, among which salesmen, housewives and laborers head the list. There were also included three physicians, one dentist and three nurses. Such occupations as broker, manufacturer, policeman, alderman, showman, musician, opera singer, machinist, houseman and painter were among those listed. Curiously, two restaurant employees were also listed. The most important epidemiologic factor, of course, as far as the Chicago cases are concerned, appears to be the carriers in local hotels. Our data as to this point are not susceptible of statistical analysis, as only five of the patients gave their residence as hotels in which carriers who were food handlers were discovered. Naturally, one would suspect that the carrier played more of a rôle than this in the epidemiology of amebic dysentery in Chicago, but the actual amount of harm done by these carriers will probably always remain obscure for the years under discussion.

CONCLUSIONS

1. Amebic dysentery is not uncommon in Chicago and has been frequently overlooked.
2. Careful examinations of freshly obtained specimens of feces in cases of colitis and diarrhea showing bloody mucus enable one to make the diagnosis easily.
3. In postdiarrheal stages diagnosis may usually be readily made by finding encysted *Endameba histolytica*.
4. Our results show that in Chicago the number of protozoan infections among food handlers is greater than among other persons taken at random.

25 East Washington Street.

Child Welfare.—In the last decade, community health programs have greatly expanded in their service to child welfare. This has come about mainly as a sequence to the development of preventive medicine. We are coming to realize more and more that, if constructive health is to be maintained, preventive measures must be instituted at an early age. The large number of school beginners with physical handicaps is striking evidence that such measures should have been carried out with these children in preschool life. Even though health workers are striving to attain the goal where children will meet standard health requirements before they enter school, this accomplishment is yet far from being attained. It will probably be for some time to come that large numbers of children will continue to begin their school career possessed of handicaps to their normal progress. It is of paramount importance, then, not to further delay finding these handicaps and in applying the necessary corrective procedures.—Allen, F. P.: Fixing the Responsibility for Corrective Work with School Children, *Kentucky M. J.*, December, 1928.

PRENATAL PREVENTION OF POTENTIAL HEMORRHAGIC DISEASE OF THE NEW-BORN

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AND
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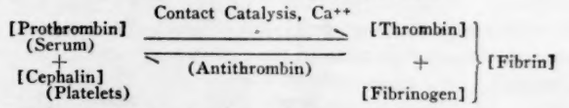
True melena neonatorum is a distinct entity when hemorrhage from the gastro-intestinal tract and a progressively prolonged clotting time of the blood dominate the entire disease picture in a new-born infant. This disease differs from other hemorrhagic "diatheses" of the new-born secondary to sepsis, thrombocytopenic purpura, congenital syphilis, congenital anomalies of the viscera, and tumors of the abdomen.

The blood clotting time of true melena is not conclusive for characterizing the hemorrhagic tendency of a new-born infant. At birth the clotting time may be normal though spontaneous bleedings occur, and the clotting time may be delayed though there is no hemorrhage. The quantitative determination of the clotting components of the blood indicates the nature of its clotting deficiency and hence the hemorrhagic status of the infant. The blood deficiency of melena neonatorum is characterized by a marked decrease in the prothrombin content of the infant's blood. The methods for the quantitative determination of the substances involved in coagulation are reported elsewhere.[1]

The Blood Clotting Mechanism



The hereditary aspect of abnormal bleeding has been restricted to hemophilia. Other forms of hemorrhagic disorders may be conveyed from parent to offspring without the transmission being sex-linked; but no studies of such disturbances have been made.

The blood of the fetus is in equilibrium with the maternal blood. Any deviation in the concentration of the clotting components would be manifest in the maternal blood studied early in the course of the pregnancy. The evaluation of the blood clotting function of maternal blood thus offers a basis of prediction of potential hemorrhagic disease developing in utero. Such an early diagnosis is more favorable for prenatal preventive therapy.

REPORT OF CASE

Mrs. T. N. had five pregnancies, the first four of which terminated in death from hemorrhagic disease in three new-born infants and possibly also in the fourth. The first baby, a girl, died about eight hours after birth; the second, a boy, was stillborn, following forceps delivery; the third, a girl, died within three hours after birth; the fourth, a girl, died at 22 days of age; the fifth, a boy, is living and normal.

The postmortem examination of the third baby showed icteric skin and sclerae and fresh blood over the mucous membranes. The middle fossa of the skull, brain, thymus, lungs, gastro-intestinal tract, bladder and rectum were hemorrhagic and bile stained. The spleen and liver were markedly hypertrophied. A diagnosis of hemorrhagic disease of the new-born was made.

The fourth baby, spontaneously delivered at full term, weighed 8¾ pounds (3.6 Kg.). At birth the skin was pale and jaun-

1. Kugelmass, I. N.: Am. J. M. Sc., to be published. Bancroft, W. D.; Stanley-Brown, Margaret; and Kugelmass, I. N.: The Evaluation of the Blood Clotting Factors in Surgical Diseases, Arch. Surg., to be published.

diced; the spleen was enlarged, and within six hours the temperature was 102 F. Whole blood was given intramuscularly followed by hyperdermoclyses. The white blood cells numbered 24,000; polymorphonuclears, 58 per cent, and platelets, 580,000. The red blood cell fragility began at 0.3 to 0.42. Blood began to ooze from the cord and vagina. Blood was present in the vomitus and stool. Successive transfusions from foreign donors, calcium salts, thromboplastin and other thromboplastic substances were without avail. Postmortem examination was denied.

The mother and father reacted negatively for syphilis and focal infections. During the fourth pregnancy the mother was toxic and was maintained on a low protein diet. The family history from the standpoint of hemorrhagic disturbances was negative.

The blood of Mrs. T. N. examined the second month of pregnancy showed a somewhat prolonged clotting time by tissue and by venous puncture. The prothrombin index was markedly low, 0.31 (normal 1.0), as is characteristic in true melena neonatorum. The fibrinogen content was low, 0.38 per cent (normal 0.6 per cent). The antithrombin index was somewhat elevated, 1.5 (normal 1.0). The platelets were low normal, 154,000. Hence, Mrs. T. N.'s blood at the second month of pregnancy was poor in clotting function and specifically low in prothrombin content, the characterizing deficiency factor in the blood of true melena. The father's blood was normal.

The clotting components of blood may be altered by nutritional measures. Prothrombin and fibrinogen are protein substances in labile disperson in the plasma. Their concentration may be increased by high protein ingestion. The platelets are lipoidal protoplasmic separations from megakaryocytes. The platelet content of blood may be increased by a relatively high intake of varied lipins, abundant quantities of fat-soluble A, and small stimulative exposures to ultraviolet irradiation.

Clotting Factors of the Blood of the N. Family

Date	Clotting Time	Bleeding Time	Prothrombin	Fibrinogen	Antithrombin	Platelets	Per Cent Lysis
		Mother's Blood					
December, 1927..	.....	.....	0.31	0.38	1.5	154,000	...
March, 1928.....	6'15", 5'15"	4'45"	0.35	0.75	1.4	175,000	37
May, 1928.....	2'30", 1'45"	1'30"	1.12	0.79	0.75	265,000	68
		Father's Blood					
May, 1928.....	3'30", 1'30"	2'	0.98	0.46	1.0	255,000	70
		Baby's Blood					
August, 1928....	2'15", 1'30"	1'30"	1.0	0.47	1.0	380,000	60

The treatment of Mrs. T. N. consisted in an analysis of her nutritional habits in order that her corrected food intake might be balanced and adequate and particularly high in varied proteins (6 Gm. per kilogram of body weight) and in varied lipins. The visceral organs were given because of their protein phospholipin content in this order: lung, kidney, testes, brain, heart, pancreas, liver. The acid-forming proteins were neutralized by base-forming fruits and vegetables. Excess of basic salts is requisite for a positive calcium balance as well as for their favorable effect on prenatal development. On this regimen, the patient's blood became normal blood and a normal infant was delivered at term.

The nutritional regimen of Mrs. T. N. was as follows:

8 a. m., a thromboplastic substance; fruits and fructose and cream; coarse cereal and butter; eggs and bacon, and acidophilus milk.

12 m., calcium chloride in spleen marrow, 15 cc.; vegetables, cooked; vegetables, raw; visceral organs; bone marrow, raw, and fruit, stewed or raw.

6 p. m., calcium chloride in spleen marrow, 15 cc.; fruit and fructose and cream; vegetable, cooked; acidophilus milk, and fruit, stewed or raw.

SUMMARY

1. A biochemical study of the clotting components of the blood from the second month of pregnancy to term in a woman who had given birth to five infants, three of whom, and possibly a fourth, had had true melena neonatorum, showed prothrombin deficiency analogous to that observed in true melena neonatorum.

2. Nutritional therapy of the mother throughout pregnancy developed and maintained a normal maternal blood before birth.

3. The fifth pregnancy terminated in the birth of a normal nonbleeding infant.

4. This case is suggestive of the possible value of prenatal treatment in bringing about the physiologic perfection of the new-born.

Further work on this subject is in progress.

Fifth Avenue and One Hundred and Fifth Street.

COMPARISON OF LEUKOPLAKIA, MALAKOPLAKIA, AND INCRUSTED CYSTITIS

REPORT OF CASES AND A NEW METHOD OF TREATMENT *

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Incrusted cystitis, leukoplakia and malakoplakia, and the rarest and most interesting of these is malakoplakia. All three are typical urinary bladder infestations; and while the latter two may occur in other parts of the urinary tract, as the kidney pelvis, ureters or urethra, the second pathologic condition mentioned, leukoplakia, is not uncommonly seen in the buccal and nasal cavities and also involving the conjunctiva. In Liebenow's [1] case there was involvement of the diaphragm.

Although the resultant pathologic lesions of these bladder conditions do not resemble one another, the inherent basic process underlying the formation of the lesions is strikingly similar in all three types; and for that reason I will briefly compare the three as to pathology, also giving a demonstration of the actual lesions, and finally will present a new, interesting method of treatment.

All the lesions are concomitant with chronic inflammatory processes of the urinary bladder of the mucous membrane, or interstitial tissue, or both. Most interesting is the fact that calculous deposits play an important part in the pathologic processes of all three, malakoplakia, leukoplakia and incrusted cystitis. For instance, in malakoplakia, in the large myelotic cells of the mucous membrane, are found the Michaelis-Gutmann bodies [2] that look like corpora amylacea and are calcium phosphate inclusions. In the epidermization of leukoplakia, calcium plays an important part not only in the formation of the stratum corneum but also in every process of the formation of the thickened pearl gray, glistening membrane, bits of which, when passed by the patient, are spoken of as "gravel." Lastly, calcium salts play a paramount rôle in the formation of incrusted cystitis, the incrustations being almost pure calcium salts. This rather common malady is manifested by one of two types of deposits; namely, thin

* Read before the San Francisco County Medical Society, Urological Section, May 22, 1928.

1. Liebenow, A.: Beitr. z. klin. Chir., Festschrift für Czerny, 1907.
2. Michaelis and Gutmann: Ueber Einschlusse in Blasentumoren, Ztschr. f. klin. Med. 47: 208, 1902.

calcified plaques, characteristic of formation in acid urine, and thick, vacuolated, white tumor calcium masses found more commonly in alkaline urine.[3]

MALAKOPLAKIA

Malakoplakia was named by von Hansemann[4] in a carefully written article in 1906, but was first described by Michaelis and Gutmann in 1903. Since then there have been several excellent German articles describing this rare condition of the urinary bladder, of which the most recent, with a careful pathologic description, is by Oppermann.[5] An excellent description of this lesion with colored plates is that by McDonald and Sewell,[6] published in Great Britain. The first American writing on the subject was by Pappenheimer.[7]

Malakoplakia means soft plaques, and the condition is characterized by brownish raised areas of the mucous membrane of the bladder; it also occurs in the kidney pelvis and the ureters, and the size of the plaques varies from pinhead single nodules to large coalesced masses with a spread of from 3 to 4 cm. and raised from 1 to 2 cm. above the normal mucous membrane. These growths are soft and have a tendency to central umbilication because of the breaking down of stratum germinativum and granulosum in the mucous membrane layers, with resultant ulceration. Oppermann[5] recently reported forty cases of malakoplakia, twenty-eight in women and twelve in men, almost all of them being past 40 years of age. There have been three cases reported in children, including Oppermann's case in a girl of 8.

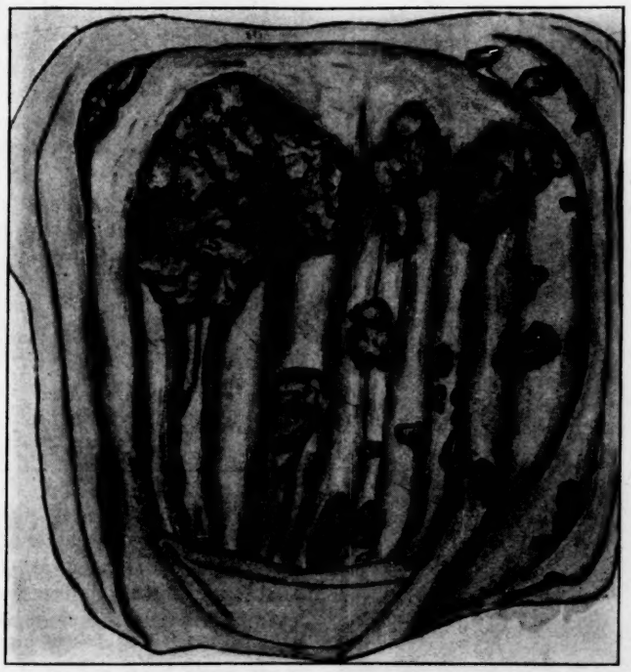

Fig. 1 (case 1).—Malakoplakia of the urinary bladder. (From a painting by Hamilton.)

The epithelium of the mucous membrane at the center of the prominences is entirely lacking. On the slopes it is pushed a little upward, giving the impression that the raised area developed under the mucous membrane and, in growing, eroded it. Almost entirely occupying the tumor structures are the macrophage-like large cells in which and around which are seen refractive rounded bodies containing calcium and iron salts. These bodies were first described by Michaelis and Gutmann. These authors[2] considered the multiple raised areas as true tumors, but Guterbock,[8] Hart,[9] Landsteiner and Stoerk[10] and Gierke[11] showed that it was a definite inflammatory process of the bladder wall. A new point of view was brought into the whole discussion when Kimla[12] showed that tubercular changes of the vesical membrane can offer microscopically, completely or partly, a picture which answers that of malakoplakia. The case described by Wildbolz,[13] which was tuberculous cystitis, was erroneously called malakoplakia. Zangemeister[14] went still further in his erroneous deductions in stating that a case could be called malakoplakia only if, on the finding of rounded caseous cystic plaques in the bladder, the patient showed a positive tuberculin reaction.

It is true that in the list of cases compiled by Oppermann,[5] in twenty-eight out of forty there had been made a diagnosis of pulmonary tuberculosis. The frequency of tuberculous changes of the lungs during advanced age has to be taken into account here. In twelve of the cases no tuberculous involvement could be found post mortem. Another question is whether or not the bacteria found by a majority of the observers play the rôle of specific stimulators in the genesis of the disease. Landsteiner and Stoerk, as well as Hart, observed that in the stratum germinativum, or deepest layer of the mucous membrane, there were numerous large cells filled, as it were, to the brim with bacteria. However, in the cases of Guterbock,[8] Loth[15] and Oppermann no bacteria whatever could be found in the tissues. The two distinctive cardinal observations that are necessary for making a diagnosis of malakoplakia, as has been pointed out, are the numerous large macrophage cells and the rounded incrustations or corpora amalycea-like bodies, many intracellular and some extracellular. If bacteria are found in the tissue one must consider the possibility that there existed simultaneously an acute or a chronic cystitis. But one must remember at this point that advanced stages of malakoplakia may exist in the urinary bladder and yet there may not be any symptom of cystitis, as in the cases of Loth,[15] Guterbock[8] and Oppermann and in my own.

There is considerable discussion in the literature as to the origin of these characteristic large malakoplakia cells. Most of the authors previously thought that they were from the spindle cells of the connective tissue; von Hansemann and Hart[4] considered that they originated in the endothelium of the lymphatics; Gierke,[11] that they were primarily interstitial cells swelled with cystic

3. Cabot: Textbook of Urology.
4. Von Hansemann and Hart: Ueber Malakoplakia der Harnblase, Virchows Arch. f. path. Anat. **173**: 302, 1903.
5. Oppermann, Ernst: Malakoplakia of the Urinary Bladder in a Girl of Eight Years, Ztschr. f. Urol. **38**: 365, 1926.
6. McDonald, Stewart; and Sewell, W. T.: Malakoplakia of the Bladder and Kidneys, J. Path. & Bact. **18**: 306, 1913-1914.
7. Pappenheimer: Malakoplakia of the Urinary Bladder: Report of Two Cases, Proc. New York Path. Soc. **6**, 1906.
8. Guterbock: Ein Beitrag zur Malakoplakie der Harnblase, Diss., Leipzig, 1905.
9. Hart Ueber die Malakoplakia der Harnblase, Ztschr. f. Krebsforsch. **4**: 380, 1906.
10. Landsteiner and Stoerk: Ueber eine eigenartige Form chronischer Cystitis, Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) **36**: 131, 1904.
11. Gierke: Ueber Malakoplakia der Harnblase, München med. Wchnschr. **29**: 1388, 1905.
12. Kimla: Hansemann's Malakoplakia vesicae urinariae und ihre Beziehung zur plaqueformigen Tuberculose der Harnblase, Virchows Arch. f. path. Anat. **184**: 469, 1906.
13. Wildbolz: Plaqueformige Tuberkulose Cystitis unter dem Bilde der Malakoplakie vesicae, Ztschr. f. Urol. **1**: 322, 1907.
14. Zangemeister: Ueber Malakoplakie de Harnblase, Ztschr. f. Urol. **1**: 877, 1907.
15. Loth: Ueber zwei besonders saltene Falle von Harnblasen Affektion, Monatsb. f. Urol. **11**: 90, 1906.

urein; but Miche [16] disproved this by showing that they were not degenerative cells but highly active and phagocytic. Krompecher,[17] Miche [16] and Oppermann [5] hold to the more tenable view that they are macrophages in the Metchnikoff sense. As to the corpora amalyceа-like deposits known as Michaelis and Gutmann bodies, it seems to be an established fact that they are composed of calcium salts absorbed from the urine and that their formation is directly stimulated by bacterial action. Loele [18] proved this in the following experiment: To normal human urine was added an equal quantity of bouillon; the mixture was infected with *B. coli* and fresh blood was added. After ten days there were found in the fluid great quantities of typical encystations or refractile lime granules.

As to the physiopathologic action that produces the resultant malakoplakia nodules: With a primary irritant, bacterial or otherwise, in the wall of the bladder or urine or both, there is stimulated the absorption of

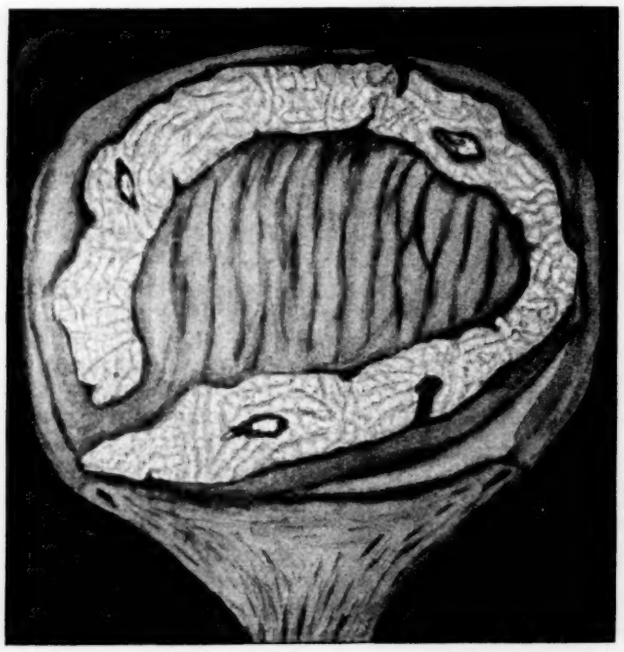

Fig. 2 (case 2).—Leukoplakia of the urinary bladder. (From a painting by Hamilton.)

lime salts from the urine within the mucous membrane which are deposited as the Michaelis-Gutmann bodies, and which, together with the primary irritant, induce the inpouring of macrophages. Large numbers of these bodies and phagocytes, and also the typical basal lymphocytic infiltration, cause a bulging of the mucous membrane. At the peak of these nodules, because of insufficient blood supply, there is a tendency to umbilication and ulceration.

The following is a report of the only case of malakoplakia that I have seen:

CASE 1.—A man, aged 62, with hematuria but without symptoms of cystitis, was examined in June, 1927, and found to have chronic pulmonary tuberculosis in the primary stage in the right upper lobe, chronic arthritis and hypertrophied prostate with blood; there were albumin and casts in the urine but bacteria were not demonstrable after continued search; there was no frequency, tenesmus, or residual urine, and pyelograms taken on each side showed the pelvis to be negative as to pathologic signs. Four lavages of the kidney pelves with weak silver nitrate solution cleared up the hematuria.

There were numerous raised, rounded, brownish soft plaques varying in size from that of a pea to one coalesced nodule in the upper right portion of the bladder wall with about 3 cm. spread (fig. 1). The plaques did not show ulceration. Removal of a small plaque with cystoscopic ronguer frozen section showed typical malakoplakia cells and Michaelis-Gutmann bodies. A diagnosis of malakoplakia of the urinary bladder was made. The patient was treated for four months. Some of the nodules disappeared and the remainder decreased in size. The treatment used will be described here later. The patient went to New Mexico for the pulmonary condition.

LEUKOPLAKIA

The word leukoplakia means white plaques or white plates and, as has been pointed out, it is essentially an epidermization, a development of mucous membrane on mucous membrane. It is a rare disease of the bladder and kidney as compared to leukoplakia of the membranes of the cheeks, of the gums and of the tongue.

Briggs and Maxwell [19] believe that the present greater cooperation between pathologist and surgeon and the greater number of necropsies in America now as compared to the past will lead to a rapid increase in the number of cases reported. These authors, in a recent paper, review eighty cases thus far reported, the condition in forty-three being vesical and in forty renal; but they believe that the disease occurs more often in the kidneys than in the bladder because the diagnosis of most kidney disease depends on operation or necropsy, whereas the diagnosis of the bladder condition can be made by cystoscopic examination. Unlike malakoplakia, leukoplakia occurs twice as often in males as in females; however, both types of lesions in the great majority of cases have been reported in patients over 40 years of age. Three exhaustive American articles on the subject have been written by Kretschmer [20] and by Hinman and his co-workers.[21] The first article on the subject was published by Rokitansky in 1861 and the first report in the American literature was by A. T. Cabot in 1891, thirty years later. The accompanying table shows the pathologic conditions associated with leukoplakia.

Associated Pathologic Conditions in Leukoplakia

Tuberculosis	7	Stone in opposite kidney and ureter	1
Hydronephrosis	24	Stone in bladder	3
Chronic pyronephrosis	25	Foreign body in kidney	1
Stone in kidney	10	Carcinoma of kidney pelvis	1
Stone in ureter	2	Carcinoma of bladder	3

THEORIES OF LEUKOPLAKIA

The theories of leukoplakia formation have been thoroughly reviewed by the authors mentioned. Briefly stated, the two outstanding theories are those of Lecene, who believed that the condition was of congenital origin and the result of misplaced cell rests, and of Haythorn, who thought it was due to chronic irritation. The latter author concludes that "the mucosa, destroyed beyond the hope of specific regeneration, seeks to protect itself with the best reparative cells it can produce in its

16. Miche, cited by Gierke (footnote 11).
17. Krompecher: Ueber Malakoplakie der Harnblase, München. med. Wchnschr. **28**: 952, 1904.
18. Loele: Ein Beitrag zur sog. Malakoplakie der Harnblase, Beitr. z. Path. Anat. u. z. allg. Path. (Ziegler's) **48**: 205, 1910.
19. Briggs, W. T., and Maxwell, C. S.: Leukoplakia of the Urinary Tract: Report of One Vesical and Two Renal Cases, J. Urol. **16**: 1 (July) 1926.
20. Kretschmer, H. L.: Leukoplakia of the Bladder and Ureter, Surg. Gynec. Obst. **31**: 325 (Oct.) 1920; Leukoplakia of the Kidney Pelvis, Arch. Surg. **5**: 348 (Sept.) 1922.
21. Kutzman, A. A.: Gibson, T. E., and Hinman, Frank: Leukoplakia of the Kidney Pelvis, Surg. Gynec. Obst. **39**: 472 (Oct.) 1924.

exhausted state; furthermore, that there is probably a link between the injury to the basement membrane and tumor growth." Richie, Briggs and Maxwell express the same idea in different words. There may be an inherent but latent ability to undergo metaplasia, acquired in the processes of evolution in the epithelial cells, when the environment is such that protection is necessary.

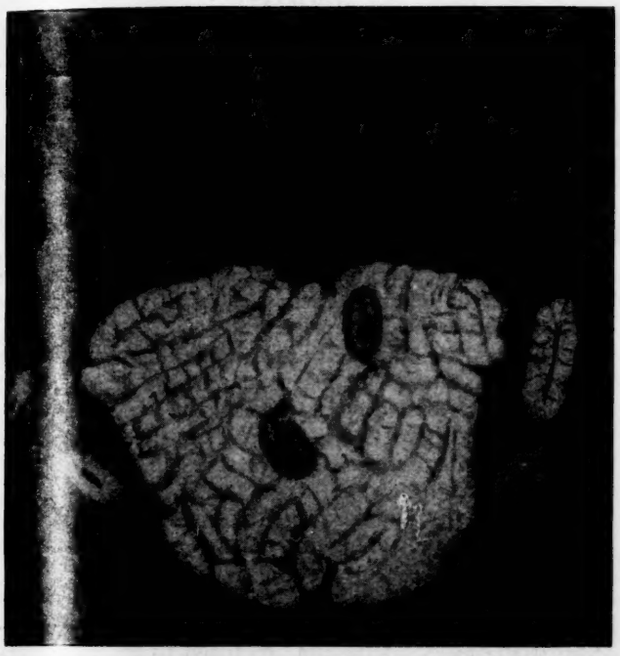

Fig. 1 (case 3).—Leukoplakia of the urinary bladder. (From a painting by Hamilton.)

The first of the following brief reports of two cases of leukoplakia is Dr. Player's, the second, mine:

CASE 2.—Mrs. L., aged 35, had had a rebellious cystitis for a year prior to examination, and had passed "gravel." There were no complications. Cystoscopy showed an injected bladder mucosa with a pearly gray, glistening, narrow, continuous plaque extending from the right ureteral orifice in a circular manner well up toward the fundus and around toward the same orifice (fig. 2).

CASE 3.—Mrs. S., aged 63, appeared robust but had had an aggravated cystitis for years. Cystoscopy showed a large square leukoplakia growth in the bladder lying on the trigon between the ureteral orifices and extending toward the fundus (fig. 3). The treatments in these cases will be discussed later.

INCRUSTED CYSTITIS

Caulk made the first report on incrusted cystitis in 1914 before the American Association of Genito-Urinary Surgeons. The condition is essentially an alkaline cystitis characterized by two types, the flat or surface type, and the elevated or tumor-like type. These may occur alone or may be associated.[3] The elevated tumor-like mass is the rarer and is due to the constant precipitation of salts on the already incrusted ulcer. The incrustations are very adherent to the bladder wall and on removal leave a punched out ulcer with irregular borders. The incrustations are usually limited by the submucosa, but the whole bladder may be involved in advanced cases. The thin, shell-like formations occur in acid urine, whereas the thick, tumor-like calcifications occur in alkaline excretions. Rapid occurrence even within forty-eight hours after removal is the pathologic characteristic of this disease. Pyelonephritis is a common complication.

CASE 4 (Dr. Player's case).—A man, aged 65, had incrusted plaques on the dorsal portion of the bladder above the trigon (fig. 4). He was treated every two weeks for twenty-six months with fulguration, topical application, and bulgarian bacillus emulsion, and is still continuing treatment.

CASE 5.—A woman, aged 40, who appeared robust, had had a very acute cystitis for one year. Cystoscopy showed thin incrusted plaques spread over the base of the bladder involving the right ureteral orifice. The patient developed pyonephrosis in the right kidney, and a nephrectomy was done. The regular routine treatment of removing plaques with rongeur, fulguration, topical application, and the use of bulgarian bacillus emulsion did not check the condition. The new treatment mentioned here cleared up the condition in a comparatively short time.

TREATMENT

These three types of urinary bladder infestation are grouped together in this paper not only because they resemble one another in the one particular of lithiasis formation and the epidermization of leukoplakia, but also because it was found that a certain line of treatment helped in all three types. Osborne and Mendel[22] reported that rats on a diet deficient in vitamin A had a tendency to develop calculi in the urinary tract. They wrote, "In every instance where calculi developed, the animals were without an adequate source of fat soluble vitamin for some time." This work was confirmed by Van Leersum of Amsterdam.[23] Another interesting truth regarding the etiology and treatment of leukoplakia is the tendency to keratinization of mucous membrane epithelial cells with the absence of fat-soluble vitamin from the food.[24] With these facts in mind, it occurred to me to treat the patient with leukoplakia with

Fig. 4 (case 4).—Incrusted cystitis of the urinary bladder. (From a painting by Hamilton.)

forced feedings of vitamin A. This was continued for about six months but the expected rapid improvement did not occur.

22. Osborne, T. B., and Mendel, L. B.: The Incidence of Phosphatic Urinary Calculi in Rats Fed on Experimental Rations, J. A. M. A. **69**: 32 (July 7) 1917.
23. Van Leersum, E. C.: Vitamin A Deficiency and Urolithiasis, J. Biol. Chem. **76**: 137 (Jan.) 1928.
24. Urolithiasis and Deficiency in Vitamin A, editorial, J. A. M. A. **90**: 1297 (April 21) 1928.

SYMBIOSIS

No report has yet been published on the subject of symbiosis of vitamins, but a noted dietitian [25] stated recently that a condition of symbiosis exists. In the feeding of vitamins, an interrelation is present to such an extent that each vitamin aids the others in their potency of action on the patient and in many cases the pushing of one vitamin will not produce any results unless careful feeding of all the vitamins is also observed. In view of this valuable advice I urged my patient to be careful to use all the vitamins in her food and continued to push vitamin A. Cameron [26] has also shown how injections of parathyroid will correct the abnormal drainage and deposition of calcium salts in patients with the tendency to epidermization and the formation of incrustations. Other reports that seemed to make it all the more logical to use parathyroid extract in these bladder infestations were those dealing with: (1) the curing of duodenal, buccal and bladder ulcers by means of parathyroid treatment; (2) the tendency for cataracts to form in patients with hypoparathyroidism, and (3) the actual curing of several patients with leukoplakia of the tongue by the administration of parathyroid.[27]

Whereas the patient with leukoplakia was treated for fourteen months without much improvement even while the vitamin A diet was being pushed, on a careful combination of the other vitamins B, C, D and E to the fat-soluble A food along with routine treatment, the condition cleared up in six weeks. The plaques, however, had a tendency to recur if treatment was stopped and especially if the patient became lax in her diet. This tendency to recur was checked by giving 20 units of parathyroid three times a week. The combined vitamin diet and parathyroid therapy rapidly reduced the size of the malakoplakia nodules. Both were given with routine treatment. Also the lesions cleared up rapidly under this combined treatment, together with the routine treatment of removing the plaques by fulguration and cauterizing with 20 per cent silver nitrate by the Player method.

In the case of incrusted cystitis there was a tendency to recurrence, and the patient suffered from acute cystitis. By pushing vitamin A, and also by giving the other vitamins and administering parathyroid, the tendency for the incrustations to recur was completely checked. The parathyroid was administered for about five weeks. It should be emphasized here that should there be also a coexisting renal infection that is incurable, or if a malignant condition exists—advanced leukoplakia, as is well known, being prone to become malignant—it is useless to hope to obtain a cure by the conservative treatment outlined here. It must be remembered that the chronicity and depth of the infestation has a great deal to do with the rapidity of the cure. Since malakoplakia involves the entire mucosa and even the submucosa, diathermy is a useful therapeutic adjunct. When certain infective bacteria as causative factors in these various infestations can be isolated, the new ecto-antigens help materially to clear up the infections.

COMMENT

In reporting a new line of treatment it is scientifically more nearly accurate to report the use of such a treatment in a large series of cases. However, because of the rarity of leukoplakia, and malakoplakia especially, probably no such large series, treated by one investigator, will ever be obtainable. I can here report my success in the treating of only one of each type of the bladder infestations. It remains for further animal experimentation and the future reports of many urologists to corroborate the marked success obtained in these types of bladder cases with the use of parathyroid and the vitamins.

SUMMARY

1. Of the two cases of incrusted cystitis, two cases of leukoplakia of the bladder and one case of vesical malakoplakia here reported, two cases, one of incrusted cystitis and one of leukoplakia, were Dr. Player's.

2. To warrant a diagnosis of malakoplakia, a portion of the plaques removed should show macrophage cells and Michaelis-Gutmann bodies.

3. Cases of malakoplakia are rare, only forty-four cases having been reported in the literature to date, including mine. Eighty-eight cases of leukoplakia have been reported, whereas incrusted cystitis is of rather common occurrence.

4. These three infestations of the urinary bladder resemble one another in that calcium salts are deposited and there is a tendency to epidermization.

5. The pushing of all the vitamins in the diet, and the injecting of parathyroid aid materially in the treatment of all three of these conditions.

6. Valuable adjuncts in the treatment are the Player method of cauterizing, diathermy and ecto-antigen injections.

7. Malignant changes in the vesical plaques and blocking of the ureters are grave complications. However, if the lesions have not advanced to the malignant stage, even involvement of the kidneys and ureters—provided the ureters are patent—need not necessarily portend a bad prognosis, if parathyroid and vitamins are administered early with routine treatment.

8. When parathyroid is administered, accurate determinations of the serum calcium should be made to avoid overdosage; i. e., symptoms of hypercalcemia.

686 Flood Building.

25. Bidding, A. W.: Personal communication to the author.
26. Cameron, A. T.: Biochemistry of Calcium, Canad. M. A. J. **16**: 753 (July) 1926.
27. Yoell, R. A.: Personal communication to the author.

Facts Facing the Profession.—The air is full of legislative and other panaceas for the one outstanding social and economic fact, i. e., we have not devised a financial system by which all members of society, regardless of economic status, may receive a full or even a reasonable share of the benefits possible through the practical application of modern scientific medicine. Our distribution is faulty because our methods are behind the times and the public thinking is addled. What other business does free work as a part of its regular program? What other business has a sliding scale of charges varying from $25 to $10,000 for the same service? Who knows how much it costs a physician to make a call? We know what cost accounting has done for modern business. Who knows anything about cost accounting in medical practice? We have not even the evidence upon which to develop a modern plan and yet a considerable proportion of the profession are fundamentalists with locked minds when any new procedure is proposed. We cannot escape change. The question is, are we going to guide it? . . . How can we keep that independence which is essential in the life of the physician and also that close personal relationship between doctor and patient which is vital to successful care of a large proportion of human ailments? Some plan must be devised so that official snoopers will not be projected in between doctor and patient. The physician must show that acute and yet conservative responsiveness that is the basis of the rapid progress of medicine as a science in the development of the practice of medicine in an economic world with new concepts of government, social organization, publicity, education and science.—Wilbur, R. L.: The Cost of Medical Care, *California & Western Med.*, July, 1928.

AMEBIC ULCER OF THE ABDOMINAL WALL FOLLOWING APPENDECTOMY WITH DRAINAGE

REPORT OF CASE *

WARREN H. COLE, M.D.
AND
MILO L. HEIDEMAN, M.D.
ST. LOUIS

Several reports of progressively enlarging gangrenous ulcers of the abdominal wall following laparotomy (usually appendectomy with drainage) have been observed in the literature during the last few years, but in no instance has the etiologic factor been definitely demonstrated. In the case described in this report, the ulcer that followed an appendectomy with drainage was conclusively proved to be amebic in origin. Amebas were found in the pus that exuded from the ulcer of the abdominal wall and were demonstrated in a microscopic section taken from the actively growing edge of the excised ulcer. Although in this patient there had never been a positive history of diarrhea which might be classified as amebic dysentery, the origin of the amebic organisms seems surely to have been from the infected appendix. We cannot offer any proof that the amebic infection had anything to do with the onset or course of the appendicitis, but the possibility of its etiologic relationship remains. Numerous large poorly defined bodies were found within the wall of the appendix near the mucosa, but they could not be identified as amebas as definitely as the organisms in the pus and wall of the ulcer. The possibility of amebas being the cause of the ulcer was first suggested by Dr. Richard Weiss, who saw the patient in consultation. The organisms were found in the pus at that time by Drs. Weiss and Heideman. The patient was later seen by Dr. M. F. Engman, who agreed without reservation to the diagnosis of amebiasis cutis.

The diagnosis of amebic ulcer was made possible by a report of three cases of amebiasis cutis by Engman and Heithaus [1] in 1919. Their first patient was suffering from a severe diarrhea. The discovery of amebas in the stool led them to conduct a similar search, which was successful, in the pus draining from the numerous large ulcers scattered over the body. The ulcers present in their cases were very similar to the ulcer of the abdominal wall in our patient.

REPORT OF CASE

History.—A white man, aged 34, was admitted to the Barnes Hospital, May 24, 1927, with the complaint of severe pain in the right part of the abdomen, which had begun twelve hours before admission. The pain first appeared in the epigastrium but later confined itself to the right side of the abdomen opposite the umbilicus. The bowels moved two or three times shortly after the onset, but there was no previous history of diarrhea. The patient vomited several times from eight to ten hours after the onset of pain. The pain was unusually severe for appendicitis. There was nothing abnormal in the genitourinary history. There had been no jaundice at any time. There was nothing of significance in the past or family history, except for a similar but milder attack of abdominal pain which had occurred a few years previously. No members of the family had ever had amebic dysentery. The patient had been occupied as a baker for the past ten or twelve years.

Physical Examination.—The temperature was 37.4 C. (99.3 F.); the pulse, 76, and the respiration, 22. There was a moderate muscle spasm over the entire right side of the abdomen, with tenderness in the same area, localized chiefly to the right of the umbilicus. There were no masses or distention. Abnormalities were not found in the heart or lungs.

The white blood count was 11,000 but rose to 16,000 just before the operation. The red blood count was 4,480,000. The hemoglobin was 80 per cent. The urine was normal.

Operation.—May 24, twenty hours after the onset of pain, operation was performed. The appendix was found under the cecum, fairly well walled off, but indurated, red and considerably enlarged. The appendix contained one large fecalith and had ruptured at this point. A communication between the lumen of the cecum and the lumen of the proximal portion of the appendix suggested a perforation into the adherent cecum during the previous attack. The appendix was removed and the stump inverted. The wound was closed around a rubber drain leading down to the appendical stump.

Fig. 1.—Appearance of ulcer ten weeks after onset. Note beginning invasion on the left side of the abdomen, but freedom of the umbilicus and operative scar from any involvement. Two or three islands of epithelium can be seen scattered over the surface of the granulating base. Growth was upward in the direction of the lymph and blood flow, and never downward.

Course.—The first few days of convalescence from the appendectomy were very smooth. There was very little drainage, and the temperature was normal.

May 29, manipulation of the drain caused so much pain that the administration of nitrous oxide anesthesia was necessary for its removal.

June 11, eighteen days after operation, a small, red, indurated, tender area appeared at the site of entrance of the stay suture, lateral to the scar of the wound. It resembled a large furuncle in every detail. The sinus at the drainage site had ceased draining several days previously and was now completely healed.

June 12, the patient was discharged.

June 20, there was a slough in the supposed furuncle, which was separating slowly and enlarging. Culture revealed a hemo-

* From the Departments of Surgery and Internal Medicine, Washington University School of Medicine, and the Barnes Hospital.

1. Engman, M. F., and Heithaus, A. S.: Amebiasis Cutis, J. Cutan. Dis. 37: 715 (Nov.) 1919.

lytic staphylococcus on two or three occasions. There were a few contaminating rods.

July 20, the ulcer was slowly enlarging. Hot, wet packs were administered. Irrigation with surgical solution of chlorinated soda (Dakin's solution), mercurochrome packs, ultraviolet ray therapy, infra-red therapy and sunlight were tried

Fig. 2.—Artist's drawing of the amebas in the pus draining from the ulcer. The average diameter of the organism was from eight to ten times that of the ordinary leukocytes which are depicted alongside the amebas. Note the pseudopodia.

at different times after the onset of the ulcer, but improvement was not noted. There was extreme tenderness and pain about the ulcer.

July 22, the diagnosis of amebiasis cutis was suggested by Dr. Richard Weiss. Amebas were found in the pus draining from the ulcer, which now measured about 12 cm. by 18 cm. The patient was started on a course of emetine hydrochloride subcutaneously, and acetarsone by mouth.

July 24, there was a very definite improvement in the appearance of the ulcer. Induration and redness were considerably decreased, which was attributed to the emetine.

September 1, after the administration of 35 Gm. of acetarsone over a period of about five weeks, the patient developed an arsenic rash. Acetarsone was discontinued. Much morphine was required daily for the relief of pain.

September 20, it was noted that the patient had received 24 grains (1.5 Gm.) of emetine hydrochloride subcutaneously during the previous eight weeks. During this time emetine was discontinued twice for seven or eight days on account of possible toxic symptoms resulting from its administration. Cessation of emetine therapy always resulted in a more active growth of the ulcerating process.

October 19, the patient was admitted to the Barnes Hospital for x-ray therapy, which was given by Dr. Sherwood Moore. Another course of emetine was begun at this time. Repeated examinations for amebas in the stool were negative.

Very definite improvement was noted on the fourth day following x-ray therapy and the second course of emetine, but active growth and extension began shortly afterward in the part of the ulcer on the left side of the abdomen.

In previous consultations with Dr. E. A. Graham and Dr. V. P. Blair, cautery excision had been chosen as the most logical method of treatment if emetine and x-ray therapy proved inadequate. Accordingly, November 7, cautery excision of the edges of the ulcer on the left side of the abdomen was done, a margin of about 1½ inches of skin being removed. The base of the ulcer adjacent to the skin was excised with the skin. A gauze dressing soaked with surgical solution of chlorinated soda was applied.

November 19, the patient was discharged from the hospital. Granulations and epithelium were growing very rapidly. There was no evidence of recurrence of the ulcerative process.

Appearance of the Ulcer.—The lesion started as a red spot seventeen days after appendectomy at the site of exit of a stay suture and resembled a furuncle. The central portion became gangrenous, causing a slough, which separated slowly. The skin surrounding the slough became red, indurated and very tender. In a few days the margin assumed a pearly appearance with a cyanotic blush, and within a few more days a grayish slough was formed, with an occasional area of dark discoloration. This slough included only the skin, and, after it separated, left a smooth, red, granulating surface. The ulcer grew in size by means of this sloughing process, and before it finally was subdued had covered practically the entire right side of the abdominal wall and the upper portion of the left side. The edges were very irregular, and extremely tender and painful. There was a distinct tendency for the ulcer to spread upward toward the head in the direction of the venous and lymphatic flow, with a disposition to heal by scarring and epithelization in its inferior portions. The granulating base was dotted here and there with small islands of epithelium, some of which were very thin and presented a translucent appearance. At no time did the ulcerating process break across the scar of the suture line or invade the umbilicus.

Fig. 3.—A cluster of the amebas on the edge of a large microscopic abscess in the section obtained from the actively growing ulcer of the skin. X marks the location of the organisms in focus. Numerous others were present. Note that many of the organisms are engorged with leukocytes as well as erythrocytes.

Nature of Organism.—Sluggishly motile amebas were found in large numbers in the pus draining from the ulcer. After administration of the first few doses of emetine the motility was practically entirely lost, but organisms could always be found. Most of them assumed an irregular shape with pseudo-

podia, even after they lost their motility. They were many times larger than a polymorphonuclear leukocyte, averaging about 25 microns in diameter. The protoplasm was granular, contained numerous vacuoles and, in many instances, had a refractory, almost glassy, appearance. The nuclei varied from 4 to 7 microns in diameter, and contained chromatin bodies as well as coarse granular material. Particles of red blood cells were occasionally seen in the protoplasm. A few of the organisms were round or oval, small and without pseudopodia; these probably represented the encysted form.

The organisms found in the stained sections, taken from the skin at the edge of the sloughing portion of the ulcer, presented different characteristics. Their relatively small size with round or oval shape probably indicated that practically all were of the encysted form. A characteristic of the organism isolated in this case, which is unusual for any kind of ameba described in the literature, was its ability to engulf lymphocytes, and even polymorphonuclear leukocytes, in large numbers. Frequently the amebas would be engorged with these blood cells and contain only a relatively small number of red blood corpuscles, most of which were fragmented. An ordinary hematoxylin and eosin stain yielded satisfactory staining of the amebas. Giemsa and polychrome methylene blue (methylthionine chloride, U. S. P.) stains were slightly less satisfactory. There was a very definite tendency for the organisms to occur in clumps, but these clumps occurred only in certain areas throughout the sections. Usually they were located about the periphery of large collections of pus cells. Only occasionally could they be found isolated among the tissue cells.

COMMENT

Search of the literature revealed at least five other cases which were so nearly identical in detail as to lead one to believe that the etiology of these particular cases must be the same. The first one was reported by Cullen [2] in 1924. It also occurred after an appendectomy with drainage, and was eradicated only after the edge of the actively growing ulcer was excised with the cautery. *Streptococcus brevis* was the only organism found by culture.

Shortly after this, Christopher [3] reported a similar lesion which began as a red, indurated area similar to a furuncle, thirteen days after a rib resection for empyema. The edges of the ulcer that developed were also red, indurated and excruciatingly tender and painful. A direct smear of the pus from the pleural cavity revealed a gram-positive coccus and a gram-negative bacillus. The fact that *B. coli* was at one time isolated from the pus (on the forty-first postoperative day) might indicate that there was some indirect connection with the intestinal tract.

From the ulcer in a case reported by Brewer and Meleney,[4] a streptococcus and a staphylococcus were isolated which, when injected just beneath the skin of animals, produced a gangrenous slough in a large percentage of the injections. Brewer and Meleney felt that perhaps the growth of the two organisms in symbiosis was necessary to produce the type of lesion in question. They were not firmly convinced, however, that this was the etiologic factor in the production of the ulcer in their patient.

Shipley [5] has recently reported a progressive gangrenous ulceration of the abdominal wall of a patient following drainage of an abscess in the appendical region. A nonhemolytic streptococcus was isolated from the pus. A similar case has been reported by Mayeda,[6] from which an organism resembling the diphtheria bacillus was isolated.

In the six cases reported, including our own, there are several points in common. All except one (Christopher's case) occurred on the abdominal wall following an appendectomy with drainage, or drainage of an abscess in that region. In Christopher's patient there might possibly have been some kind of a connection between the intestinal canal and the empyema cavity, since colon bacilli were found in the empyema cavity at one time. All of the ulcers have had the same appearance and have been exceedingly tender and painful. So far as we were able to determine, all of the patients survived, but only after there had been a radical excision of the actively growing edge of the ulcer. Various types of treatment, including hot wet packs, irrigation with surgical solution of chlorinated soda, potassium permanganate packs, sunlight, ultraviolet rays, infra-red rays and roentgen therapy, have been tried in the cases reviewed, but without any appreciable improvement. In our case, we felt that x-ray therapy was helpful, but Dr. Sherwood Moore, who gave it, was not so optimistic. Gauze packs soaked with emetine were used in the treatment of our patient, but improvement could not be seen.

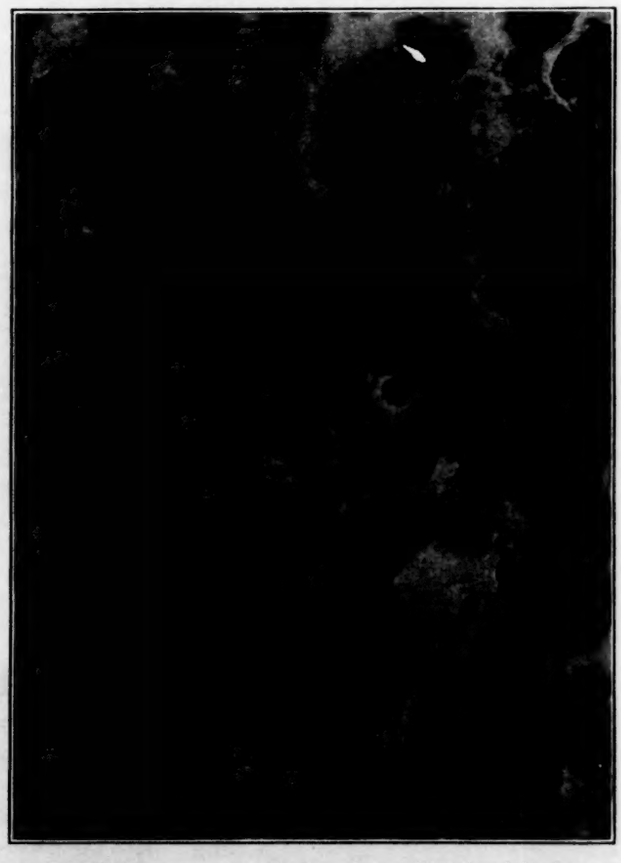

Fig. 4.—Higher power magnification of organisms found in the same section as figure 3, but from a different area. X marks location of two organisms in focus.

From the description of the cases reviewed, including our own, it seems logical to conclude that the etiologic factor is the same in all of them, namely, an amebic

2. Cullen, T. S.: A Progressively Enlarging Ulcer of the Abdominal Wall Involving the Skin and Fat, Following Drainage of an Abdominal Abscess Apparently of Appendiceal Origin, Surg. Gynec. Obst. 38: 579 (May) 1924.

3. Christopher, F.: Severe Spreading Carbuncular Infection of Chest Wall, Following Rib Resection under Local Anesthesia, S. Clin. North America 4: 795 (June) 1924.

4. Brewer, G. E., and Meleney, F. L.: Progressive Gangrenous Infection of the Skin and Subcutaneous Tissues, Following Operation for Acute Perforative Appendicitis, Ann. Surg. 84: 438 (Sept.) 1926.

5. Shipley, A. M.: Progressive Gangrenous Ulceration of the Abdominal Wall, Ann. Surg. 87: 245 (Feb.) 1928.

6. Mayeda, Tomosuke: Eine seltsame Hautgeschwurabildung nach der Appendektomie, Deutsche Ztschr. f. Chir. 199: 350, 1926.

organism. We feel that finding the organism in such large numbers in the microscopic section of the actively growing ulcer of our patient, as well as in the pus draining from the ulcer, excludes the possibility of its being a contaminating organism. The fact that emetine produced such striking improvement in the ulcer points also to an amebic origin, despite the fact that emetine failed to eradicate it. Since so many varieties of organisms have been isolated in the cases reviewed, one might conclude also that this type of ulcer is not of coccal or bacillary origin. It was the opinion of Drs. I. Y. Olch, H. A. McCordock, A. J. Kendall and L. D. Thompson, who also studied the sections from our case, that the cell found was a protozoan parasite and could best be classified as an ameba. It is significant that none of the patients reviewed in this report, including our own, were suffering from amebic dysentery.

A brief description of seven additional cases has been found, but insufficient data are given to enable us to conclude with any degree of accuracy that they were of the same nature as our case. The one reported by Alexander [7] seems identical, especially in the manner of progression; viz., an active invasion of fresh skin for a few days, followed by a period of comparative sluggishness for about ten days. The six other patients were mentioned by Porter (three cases), Moschcowitz (two cases) and Clinton (one case) in the discussion of Brewer and Meleney's paper. The ulceration in four of the seven foregoing cases followed operation for appendicitis. A protracted gangrenous ulceration of the chest wall has been observed by J. G. Probstein of St. Louis, following an operation for a draining sinus of the breast, but amebas could not be found.

Fig. 5.—Appearance of the abdomen after ulcer had healed. Skin grafting was not done. Epithelization and scarring were so rapid that the patient preferred not to run the risk of a recurrence of the process by any manipulation that would be necessary with such a procedure as skin grafting.

CONCLUSIONS

1. An amebic organism has been found in the pus and microscopic section of an ulcer occurring after an appendectomy with drainage, and evidence points to that organism as the etiologic cause.

2. The similarity of the lesion in this case to that in the other cases reviewed in this report is so striking that the etiologic factor would appear to be the same.

3. The most efficient and practically the only satisfactory method of treatment is cautery excision of the actively growing part of the ulcer. The excision should extend at least 2 cm. beyond any red areas creeping out from the margin of the ulcer.

4. The possibility that amebas may influence the pathologic process in the appendix in some cases of appendicitis is suggested. Unusual bodies were found in the wall of the appendix in our case but they could not be identified as amebas.

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7. Alexander, E. G.: Postoperative Spreading Superficial Gangrene, Ann. Surg. **84**: 461, 1926.

A SPECIALIZED TYPE OF MUSCLE IN THE HUMAN PREGNANT UTERUS

POSSIBLY ANALOGOUS TO THE CONDUCTIVE SYSTEM OF THE HEART *

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The problem of uterine activity during labor, more particularly as regards the regularity of contraction and relaxation, has from time immemorial attracted the attention of the medical profession. Yet if one reviews what is known or conjectured concerning the nervous and hormonic principles that may govern the underlying biologic processes, one is confronted with such bewildering divergence of opinion that it is difficult to form a conception of the pathways for the conveyance of the nervous impulse to the pregnant organ.

Bearing in mind that an appreciation of function presupposes a thorough knowledge of structure, it seemed advisable to approach the object in view by a careful study of the histology of the pregnant uterus, devoting special consideration to its outer layer. It is this stratum which in the past has challenged the attention of several investigators. While there still exists a great deal of controversy concerning the anatomic structure of the wall of the pregnant organ, it is generally agreed that there occurs during pregnancy a remarkable rearrangement of its outer layer, which appears as an external hoodlike structure arching over the fundus and extending into the various ligaments. These observations are mainly the result of the work of Hélie,[1] Henle [2] and Bayer,[3] who established the facts in question by employing a special technic of dissection. No substantial research in this field, however, has appeared for a long period.

It is my object in this paper to call attention to certain characteristics of the uterine wall that were established after twenty-six uteri obtained during the various months of pregnancy had been studied. Emphasis is laid on the development in the outer layer of a specialized structure, whose typical microscopic features are in marked contrast with the rest of the uterine muscle and closely resemble the Purkinje system of the heart. Indeed, it is possible to distinguish the fibers of this

* From the Department of Obstetrics, Johns Hopkins University and Hospital.

1. Hélie: Recherches sur la disposition des fibers musculaires de l'uterus developpés par la grossesse, Paris, 1864.
2. Henle: Anatomy, 1873.
3. Bayer, in Freund, W. A.: Gynecologische Klinik, 1885; Allgemeine Geburtshülfe, 1903.

specialized system simply on the basis of their microscopic appearance, and it is probable that such histologic modifications must be associated with a corresponding difference in function. While the work here presented is mainly morphologic in character, reference to a number of phenomena established both by clinical obser-

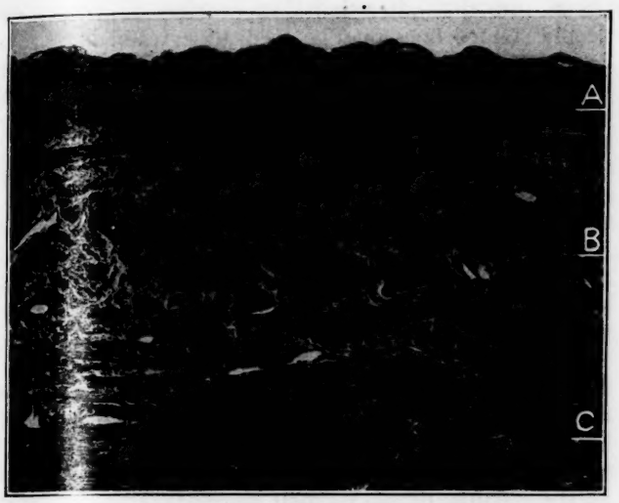

Fig. 1.—Section through outer half of uterus in the middle of pregnancy, reduced from a photomicrograph with a magnification of 40 diameters; *A*, outermost layer; *B*, supravascular layer; *C*, vascular layer. Note the broad connective tissue spaces in layer *B*.

vation and by biologic research may help to illustrate the physiologic significance of the system under consideration.

For a proper understanding of the topography, it is necessary to present briefly a description of the histologic structure of the wall of the pregnant uterus as shown with low magnification. Beneath the peritoneal covering is seen a thin superficial layer of relatively compact longitudinal fibers, followed by a thicker layer of circular fibers that are spread apart by characteristically arranged connective tissue spaces, which contain many vessels. Internal to this, again, comes a layer of muscles interlacing in both directions, and internal to that comes the bulk of the uterine muscle, which consists of a dense feltlike mass of fibers that extend to the base of the decidua. Hence, it is possible to divide the muscle wall of the pregnant uterus into two parts, a thinner exterior and a thicker interior portion.

At the fundus, the longitudinal superficial layer extends almost over the entire front of the organ but disappears at its sides, where it is connected with the broad ligaments; it is present to a lesser extent on the posterior wall. The development of the longitudinal bundles is most pronounced in the middle third of the anterior uterine wall, all the way from the fundus to beyond the loose attachment of the peritoneum; while on the posterior wall the structure terminates half way between the fundus and the internal os. On the other hand, on the posterior wall of the lower uterine segment there is a superficial band of longitudinally arranged fibers which spreads horizontally to both sides to a varying extent. Figure 1 illustrates the appearance of the two constituents of the superficial uterine layer, the longitudinal band and the circular fibers being separated by broad connective tissue spaces.

The distribution of the specialized system in the outer portion of the pregnant uterus is visible to the naked eye as distinct longitudinal bands, which are arranged mainly in parallel fashion. In transverse and mesial sections through uteri preserved in Kaiserling's solution, the structure appears as a well defined whitish formation, from 1.5 to 3.5 mm. thick, which occupies the entire peripheral zone from the bladder reflection anteriorly to the middle of the posterior wall. There it ends abruptly, to reappear in the region of the lower uterine segment.

When the outer layer of the pregnant uterus was examined microscopically, my attention was first drawn to this tissue by what appeared to be the presence of vacuoles. For the past year I have been investigating this tissue more carefully and have found that it consists of a characteristic structure, conspicuously differentiated by the clear diaphanous character of its specific elements, presenting a histologic picture much like that of Purkinje fibers. In order to determine the histologic character of the tissue, different methods of fixation and staining were employed in preparing the specimens obtained at various stages of pregnancy for microscopic study. Thus, it was found that the technic for its gross demonstration in fixed preparations is simple, while its morphology presents a varying picture according to the fixatives employed. Specimens preserved in solution of formaldehyde, alcohol, or Zenker's fluid do not give such sharp outlines, nor do they show such fine details as when treated by mixtures of osmic acid, acetic acid and potassium bichromate or of chloroform, acetic acid and alcohol. For the cell structure iron hematoxylin and Mallory's method are the best, while sections stained by safranine give better differentiation than eosin preparations.

Figures 3 and 4 illustrate the characteristic features of the structure under consideration. On cross section in figure 3 there is seen a network of cells of very special character. The bulky cells are polyhedral in outline and present an abundant protoplasm, with a central zone enclosing the nuclei. In some specimens this central area is pale, nonstaining and perfectly homogeneous, while the cortical zone, which may be very

Fig. 2.—Mesial section through upper half of uterus at term, showing the white outer zone.

thin or may encroach considerably on the central zone, appears darker because of its granular sarcoplasm. There may also be seen slight differences in the quantity of sarcoplasm in various preparations. Two additional distinguishing features are easily discerned in some of these cells: a zone of condensation running

transversely through the cytoplasm or a partition dividing the cytoplasm into a clear and a darker area. Interspread between the elements just described are some elongated cells which exhibit the characteristics of ordinary smooth muscle. Since the cytoplasm of these intercalated cells appears much darker when contrasted with that of the fibers under consideration, and, furthermore, as their processes connect, veritable frame-

Fig. 3.—Cross section through outermost layer of the same uterus as in figure 1; iron hematoxylin; × 140.

works are frequently formed resembling a honeycomb, in which the clear elements are included. However, there is nothing invariable about this disposition. On the other hand, another characteristic of the structure is the presence of a well developed connective tissue sheath, with a few elastic fibers, surrounding the individual bundles, and continuous with it there appear within the fasciculi ramifying bands of connective tissue which are abundantly supplied with delicate vessels and which divide the bundle into several divisions. When the fibers are seen longitudinally (fig. 4), the following characteristic features are noticeable: in the first place, from three to five nuclei are present in the axial zone, surrounded by a lucid area; secondly, one end of the fiber ends in a club-shaped process with a homogeneous sarcoplasm. In addition, the plexiform arrangement of the whole structure is worthy of note.

Frozen sections stained with sudan show practically no fat in the fibers, while the occurrence of a few fine fat granules in the perinuclear areas is rather uncommon.

Sections stained by Best's technic reveal the presence of abundant glycogen in the connective tissue spaces, both at the periphery and within the fasciculi, while the glycogen supply in the cells themselves is rather scanty.

Mallory stain emphasizes the distribution of the connective tissue sheaths and gives excellent pictures of the zones of condensation within the individual fibers, as well as some other details of the cell structure.

Iron hematoxylin best brings to light the transverse striation of the fibers, while other stains show little sign of it. Mitotic figures and delicate filaments within the nucleus are also well demonstrated by this stain. The character of the multiple small nuclei is likewise well defined by it, when it appears that they are sometimes joined together or sometimes quite distinct from one another, but they always lie in the axis of the cell and are surrounded by an ovoid clear area. True mitotic divisions may be observed on rare occasions in specimens obtained during the whole course of pregnancy.

The peripheral zone of the cells stains intensely in these preparations and shows granules but no longitudinal striation. A transverse striation of the cytoplasm, on the other hand, appearing as transverse deeply stained lines may be seen, though not invariably in close proximity to the perinuclear zone or situated more toward the rounded end of the cell, but a symmetrical distribution of the striation throughout the entire extent of the cytoplasm occurs only occasionally. The striation in the various cells shows a great deal of variety.

Another particular feature of the elements under consideration is the occurrence of condensation of the cytoplasm, which appears in different parts of the cell as deeply stained disks which occupy a larger or smaller area and are sometimes disposed in a terrace-like arrangement. Our material, however, does not permit any statement as to the correlation between these zones of condensation and the phenomena of localized contraction of the cytoplasm.

The description so far given tends to show that, in all the essential details of their histology, the cells under discussion resemble the Purkinje elements of the conducting system of the heart muscle. Since the cell under consideration is of greater diameter than the ordinary uterine muscle fiber and is conspicuous by its histologic character, its presence in the deeper muscle layers can be ascertained without difficulty. Accordingly, cells of the specialized type may be seen permeating the muscle stratum beneath the vascular layer either as a few isolated elements or more often grouped about the periphery of the muscle strands. Figure 5 may be taken as an illustration of the particulars here described. When cross sections were examined through the entire thickness of the uterine wall, the presence of a thin longitudinal bundle of these cells was distinguishable in the upper two thirds of the uterine body, and interspersed between ordinary muscle strands at the

Fig. 4.—Transverse fibers of the same section, reduced from a photomicrograph with a magnification of 370. Note the groups of clear fibers and multiple nuclei.

margin of the uterus. Moreover, microscopic study revealed the occurrence in deeper muscle layers in the lower part of the posterior wall of the uterus of two thin longitudinally arranged bundles, which connect the lower pointed end of the formation on the posterior uterine wall with the macroscopically visible white zone in the lower uterine segment in the region of Douglas' pouch.

Although no special effort has as yet been made to study the nerves, it should be noted that the bundles of the specialized system within the posterior wall of the lower uterine segment and at the margin of the uterus lie in close proximity to nerve fibers. A special study of the relation of the specialized system to the nerves and ganglions will, however, be made in the near future.

On the relations that exist between the specialized system and the ordinary muscle of the human pregnant uterus there is no reference in the literature. When suspended in Locke's solution, strips obtained from the subperitoneal layer of the pregnant uterus strikingly show more frequent and more vigorous contractions than strips taken from other parts of the organ. Likewise, the response to small amounts of pituitary extract is considerably more pronounced in the former. These facts were ascertained in this clinic a few years ago by the extensive work of Sun,[4] and have been abundantly substantiated in our studies. They are possibly comparable to the statement of Ishihara [5] that the rhythmic properties of the Purkinje system are higher than those of ventricle fibers. The further fact that, following the incision of the uterine wall at cesarean section, the superficial layer retracts more vigorously than the rest of the muscle, in turn suggests an analogy to the observation made on the heart "that in fresh tissue the Purkinje fibers contract more than the cardial fibers and dimpling is seen on the fresh cut surface." [6] Moreover, the physiologic specificity of the structure under consideration is demonstrable in the living organ by its response to pituitary extract. At cesarean section, following the intramuscular administration of this drug, a pale band from 2 to 3 inches wide, composed of parallel fibers, is visible over the anterior surface all the way from the bladder reflexion to the fundus, in its pattern resembling the tenia of the large intestine. The wave of contraction spreads from this band and involves an ever increasing area of the pregnant organ. Synchronous with the first appearance of the tenia in the midline there comes into view an orbicular structure surrounding the insertion of the tubes, as well as a pale zone in the midline of the posterior aspect of the lower uterine segment. These phenomena are most striking when the operation is being performed in spinal anesthesia.

Viewed in this way, the specialized system reveals itself as a particularly susceptible structure. In order to place the results in their proper perspective, it may not be inappropriate to designate the system in point the pacemaker of the parturient uterus.

Impairment of the functional integrity of the specialized system apparently interferes with the coordinated rhythmicity and contractility of the pregnant uterus. The fact that in severe cases of premature separation of the normally implanted placenta, when the uterus fails to contract or to respond to any stimulant employed, these fibers are dissociated by hemorrhage would seem to lend support to my point of view. The further fact that defective development of the specialized system was observed in a specimen obtained from an elderly primipara can also be interpreted as affording presumptive evidence in favor of a correlation of this phenomenon with the incidence of inertia uteri, so frequently seen in such patients. The relationship that exists between some shock conditions and traumatism of the specialized system will be considered on another occasion.

According to the present conception, it is by means of the conductive bundle of His that the ventricle and auricle of the heart are united functionally. It is through this structure that all cardiac impulses are originated and propagated. In man, the bundle is from 1 to 2 mm. in thickness and is conspicuous by the pallor of its fibers.

In view of such a similarity in both their gross anatomic and their histologic features, as well as of the response to certain drugs, I am inclined to assume that the specialized system of the human pregnant uterus may represent an analogue of the His bundle in the heart. Located on the surface of the pregnant organ, it is placed in the most advantageous position for the quick distribution of an impulse to the uterine muscle, the wave spreading from without inward. The ultimate solution of the subject and its proper evaluation, however, must rest on intensive experimentation and clinical observation. The histogenesis of the system will likewise call for special study. The evidence at hand tends to show that the development of the fibers is demonstrable from the fourth week of pregnancy, while by the middle of the process the structure has become well established. It is interesting to note that in the premenstrual period the muscle fibers of the outer layer show a definite swelling of their cytoplasm.

Fig. 5.—Portion of supravascular layer of pregnant uterus at term; × 260. Note groups of clear fibers in the periphery of ordinary muscle strands.

Another aspect of the problem is suggested by considering the peculiarities of the development of the uterine muscle during prenatal life. As a result of the work of Werth,[7] Bayer, and others, it is accepted that superimposed on the main "primary" muscle layer of the fetal uterus there develops during the last few weeks of gestation a new outer muscle stratum, which undergoes a remarkable involution following birth and disappears entirely in the course of the succeeding months. There is strong evidence to indicate the development of this muscle structure from the subserous connective tissue. Hence the term "muscularis serosae" or "paramyometrium." Whatever the factor initiating the

4. Sun, Ko Chi: Bull. Johns Hopkins Hosp. **36**: 280 (April) 1925.
5. Ishihara, in Lewis, Thomas: Mechanism and Graphic Registration of the Heart, ed. 3, 1925.
6. Cowdry, E. V.: Special Cytology, ed. 2, **2**: 857, 1928.
7. Werth and Grusdew: Arch. f. Gynäk. **55**: 366, 1896.

growth of this layer—possibly the anterior lobe of the hypophysis—the transmission of a stimulating substance through the placenta, responsible for the striking parallel in the new formation of tissue elements both in the maternal and the fetal organ, should be considered.

Finally, it may be said that the anatomic and clinical evidence here adduced lends support to the conception that there exists in the outermost layer of the human pregnant uterus a structure closely resembling the conductive bundle of the heart.

URETERAL OBSTRUCTION IN INFANCY

A STUDY OF SEVENTY-FOUR CASES *

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This article constitutes an outline of a clinicopathologic study of ureteral obstruction in infancy and childhood, a detailed report of which, with follow-up histories, will be presented later. The conclusions in this work were drawn from observation in seventy-four cases of ureteral lesions discovered by autopsy, by urologic examination and, in some instances, by both.

In infants, as in adults, urinary stasis predisposes to and perpetuates infection of the urinary tract. Stasis is predominantly the result of obstruction, and in

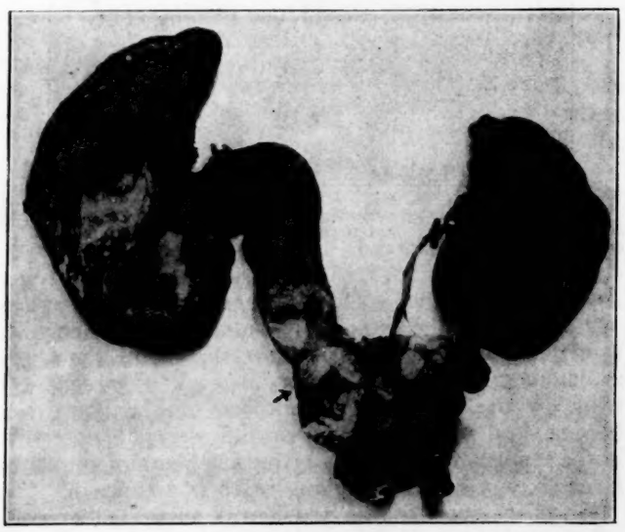

Fig. 1.—A rather typical autopsy specimen of ureteral obstruction (congenital stricture) 1.5 cm. from bladder in a boy, aged 4 months, admitted to the hospital for pyuria and dying on the second day; marked hydropyoureter and nephrosis.

infants the majority of urinary obstructions are found along the course of the ureter. A recent autopsy study of 2,420 pediatric cases at Bellevue Hospital revealed gross evidence of ureteral blockage in forty-seven cases, an incidence of nearly 2 per cent. Infection was demonstrated in four fifths of these by urinalysis or autopsy, allowing one to deduce that approximately one in fifty of all children has some form of ureteral obstruction, which in many cases accounts for an obsti-

Fig. 2.—Dense and tight ureteral stricture at ureterovesical junction in a girl, aged 7 months. Urologic examination because of persistent pyuria revealed poor renal function on left side with infection; right side normal. Marked improvement followed ureteral dilation. Most noteworthy was the fact that the weight immediately showed gain, having been stationary for some weeks.

nate urinary infection and pyuria or, not infrequently, recurring attacks of so-called acute pyelitis.

In this paper we are not concerned with the condition commonly called acute "pyelitis," which is probably not an inflammation of the pelvis of the kidney but an infection of the kidney substance. It is almost always accompanied by infection elsewhere (as a tonsillitis or gingivitis) and usually clears up in two or three weeks, no matter what treatment is used. We are dealing here only with those cases of pyuria and other symptoms of renal infection which persist or recur in spite of systematic treatment over a period of six weeks or more.

A certain number of such patients suffer many recurrent acute attacks of renal infection, the acute disease being but an exacerbation of the chronic infection and dependent on the degree of obstruction within the urinary tract. In another group the onset of the urinary infection is insidious, often dating from birth, and in these cases, too, the disease remains intractable. Urologic examination reveals obstruction of one type or another in nearly all these cases, and, in the majority, the impediment is found along the course of the ureter.

CHARACTER OF OBSTRUCTIONS

These obstructions may be classified as (1) congenital or acquired or (2) intra-ureteral or extra-ureteral. They will here be considered under the latter heading, since on the intrinsic or extrinsic character of the blockage depends in a large measure the method of

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surgical attack. Of the intra-ureteral obstructions, strictures (including valves and blind endings), calculi, kinks, reduplications, abnormal insertions, renal ectopy, ureteral spasm, intra-ureteral cysts and blockage by renal débris must be considered. Aberrant vessels, peri-ureteral sclerotic bands, and extra-ureteral inflammatory or neoplastic masses constitute the majority of the extrinsic group.

INTRA-URETERAL OBSTRUCTION

Strictures.—These lesions account for more than half of all ureteral obstructions. Most of those encountered in infancy are congenital and in location show a definite predilection for the ureteral extremes—the pelvic or the vesical insertions. They may, however, occur at any point along the course of the canal, and may be multiple as well as bilateral. In a fifth of our cases we found them bilateral, and in half multiple, but we have never seen more than three strictures in the same ureter. In one instance these lesions were found bilaterally in a seven months' fetus, the upper urinary tract showing marked dilatation but no gross evidence of infection. Certain observers consider these obstructions as mucosal redundancies with valve formation; but, while this condition undoubtedly does exist in some cases, in most instances histologic examination of these lesions reveals marked mural fibrosis. Clinically, however, we are unconcerned with the etiology of the obstruction; renal infection and destruction ensue whatever may be the histologic character of the atresia. At autopsy we have found some cases in which the ureter

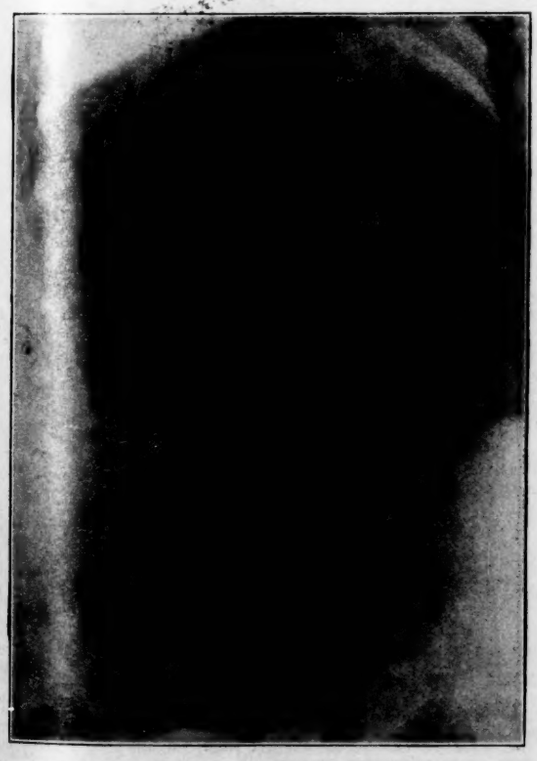

Fig. 3.—Ureteral stricture (presumably congenital) at ureterovesical junction in a girl, aged 13 months. Urologic examination revealed infection, dilatation and diminished renal function; marked improvement followed dilation of stricture.

ended blindly. Aside from the possibility of surgical pyonephrosis of the excluded kidney, these should cause little clinical concern.

Unquestionably, some strictures of inflammatory origin have their beginning in infancy. In adults, Hunner has noted an apparent association between ureteral strictures with acute renal infections and focal infectious processes elsewhere in the body. He has explained the acute renal disease on the obstructive basis as an acute congestion of a ureteral stricture or

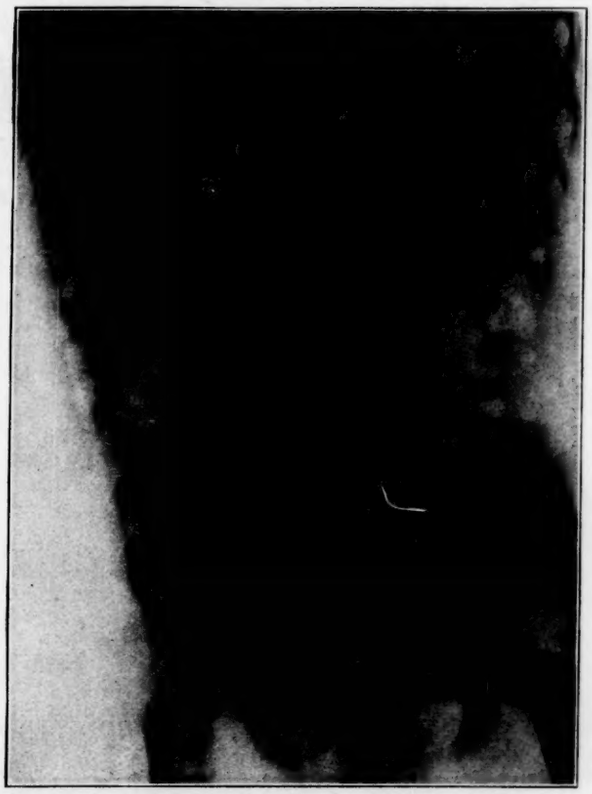

Fig. 4.—Two uric acid calculi in lower third of left ureter casting "negative" shadows in pyelographic mediums in a girl, aged 20 months. Scratch obtained on wax bulb catheter; ureteral specimen showed infection and diminished renal function. Calculi were passed following ureteral dilation with two number 5 F. catheters passed side by side; there was also a small stone in bladder.

localized infiltration incited by an acute focal process elsewhere, most often in the teeth, tonsils or sinuses. In infants the proof of such an association is even less clear, although it is known that certain renal infections do not clear up until the focal infections (tonsils particularly) are eradicated. The following clinical observation is of interest in connection with this theory:

A boy, aged 7 months, was admitted to Bellevue Hospital with an acute otitis media which was shortly followed by a marked pyuria. At autopsy bilateral acute focal suppurative nephritis and granular ureteritis were found. In the left ureter about 2 cm. below the pelvic junction there was a granulating ulcer about 1 cm. long extending well into the submucosa. The sclerotic healing of such a lesion might well give rise to clinical stricture in later life.

In our series, twenty-five strictures were found at autopsy, and eighteen were demonstrated by urologic examination.

Calculi.—Urinary stones are frequently found in children; urinary stasis predisposes to their formation. Most are formed within the kidney pelvis, and they are least often found in the ureter since more than 90 per cent of those which leave the kidney pass to the bladder. In five cases coming to autopsy, ureteral obstruction was found to be due to stone. In two cases showing multiple small calculi in the pelvis, a stone had jammed in the ureteropelvic junction causing marked hydropyonephrosis. In two other cases large stones filling

the entire kidney pelvis presented projecting tips which nearly occluded the pelvic outlet. In another instance a large soft stone was quite firmly embedded against a stricture 2 cm. from the bladder. In a further case we demonstrated by urologic examination two stones in the lower ureter of a child, aged 2 years. The history of this case follows, illustrating the use in children of

Fig. 5.—Ureteral kinks; "cord bladder" in a girl, aged 6 years, with marked dilatation and infection. The kinks here are secondary and probably of no clinical concern. The patient died six months later of uremia.

the same urologic methods of diagnosis and treatment employed in adults:

A girl, aged 20 months, was admitted for pyuria of two months' duration. A plain x-ray film was negative. Cystoscopy revealed a small stone in the bladder (estimated 6 mm. diameter). Ureteral specimens revealed marked infection of the left ureter with diminished function (indigo carmine). A pyelogram showed a dilated ureter with two "negative" shadows in the lower left ureter (fig. 4). One week later a wax bulb passed showed stone scratches. The left ureter was dilated with two number 5 F. catheters passed side by side. Three weeks later there was no stone in the bladder, no scratch on the wax bulb, and moderate dilatation of the ureter without pyelographic evidence of stone.

In this case we were dealing with three small uric acid stones, all of which were passed. Unfortunately they were lost and no chemical examination was possible.

Kinks.—Acute ureteral angulations or kinks are most often associated with renal ptosis or ectopy. They are most often situated near the ureteropelvic junction but may occur at any point. They may be congenital; we know of one instance, in mono-ovular twins, in which autopsy revealed sharp S shaped kinkings in the left ureters at precisely the same point. Curiously, there were also identical transduodenal bands. In our series we found kinking associated with ectopic kidney in two cases at autopsy and as a secondary lesion in a case clinically. The primary condition was a "cord bladder" with marked upper urinary tract dilatation and infection in a 6 year old girl.

Ureteral Reduplication.—Obstruction has been noted at the point of ureteral crossing in some cases of complete ureteral reduplications. We have never observed such a case. Atresia is more commonly noted at the site of bifurcation in cases of incomplete reduplication. In one such case, a girl, aged 5 years, we did not properly interpret our urologic observations, although operation revealed the true condition. The patient complained of right loin pain and pyuria. Examination revealed a "dead" right kidney, urographically a pyonephrosis. We advised nephrectomy, but a reexamination was requested. This revealed quite normal urine, good function and a small, lobulated, smooth-walled pelvis. As repeated lavage failed to improve the condition, the kidney was removed. Examination of the specimen revealed a double kidney, normal above, pyonephrotic below, with an infected, dilated lower ureteral branch.

Abnormal Insertions.—Insertion of the ureter high on the kidney pelvis is usually associated with acute angulation at the junction, and not infrequently the lower segment of the orifice assumes a lip or valve formation blocking the pelvic outflow. In this series two such cases are included. At the other extreme insertion into the urethra, the rectum or vagina may be

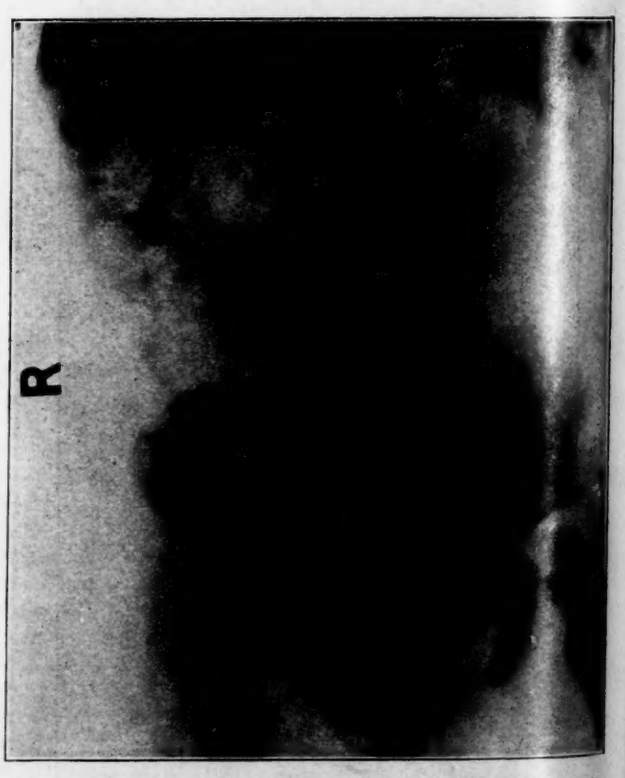

Fig. 6.—Ureterospasm, frequently and erroneously diagnosed as ureter stricture, in a girl, aged 4 years. No obstruction was made out in this case; the apparent constriction was not shown in other films taken at the same time, or in subsequent urograms.

associated with obstruction. We have records of autopsies in this type of ectopic insertion, but in none of these cases was obstruction produced. Some observers, however, have reported this type of obstruction.

Ureteral Spasm.—Braasch and others have reported numerous cases in which chronic ureteral obstruction

was quite evidently due to ureterospasm. The mechanism of this phenomenon is not understood. Clinically, we observe certain patients showing great unilateral ureteral dilatation without evidence of anatomic obstruction. The lesions are predominantly unilateral and are located chiefly at the ureteropelvic or the ureterovesical sphincters. In our series we had eight such cases, all showing marked unilateral dilatation of the ureter and pelves without demonstrable sclerotic obstruction. One of these we studied clinically.

Other Types.—Intra-ureteral cysts have been noted by some to cause obstruction. We have not seen such instances in children. As a secondary condition, the passage of blood clots or necrotic débris from an ulcerating kidney (tuberculosis, tumor) may temporarily or permanently obstruct the canal. In infancy this condition is rare and of little clinical concern in view of the gravity of the primary condition. At autopsy one patient, a boy, aged 3 days, dying of hemorrhagic disease of the new-born, showed both lower ureters firmly plugged with blood clots and moderate dilatation above.

EXTRA-URETERAL OBSTRUCTIONS

Aberrant Vessels.—These most frequently pass from the lower renal pole to the aorta or vena cava, although instances of midureteral and lower ureteral obstruction by anomalous vascularization have recently been reported. In the latter group offshoots of the iliacs, particularly the uterine arteries, have been described. In most instances of obstruction near the pelvic junction, the renal ptosis associated with the more or less slowly forming hydronephrosis aids in accentuating the obstruction. It is believed by many that, could the kidney be kept in its normal position, these vessels would cause little or no obstruction. Apparently, however, the renal enlargement and descent begins rather early in childhood. During the past two years we have seen seven such cases at operation—one in a child of 6 years—and in four of these loin pain had been present since early childhood. They had noted also that great pressure over the loin gave temporary relief—the result of the emptying of a tense hydronephrotic sac.

In this series we are reporting two cases of this lesion, one found at autopsy and the other in a girl, aged 6 years. In the latter case the diagnosis was made by pyelogram (fig. 7) and proved by nephrectomy. The clinical course of this patient is of interest in that she had complained of right loin pain, pyuria and intermittent colics since earliest recollection. At the age of 3 an appendectomy had been performed during an acute attack. An extensive search of the literature would indicate that she also represents the youngest recorded case of this type of lesion to be diagnosed urologically and treated surgically.

Periureteral Sclerosis.—This may assume the form of bands of adhesions as has been observed by some, or, as in a case of ours, may be due to scarring at the point of intersection of the vas deferens and the ureter. Dense obstruction at this point was determined at autopsy in a patient 5 months of age. Other evidence of deferentitis was not observed.

Extra-Ureteral Masses.—These are chiefly the result of inflammation or new growth. In a case of the latter type which we examined recently, in a boy, aged 4 years, the tumor mass so filled the abdomen that a catheter could be passed only 4 cm. A pyelogram revealed the neoplastic character of the ureteral compression.

Large inflammatory masses along the course of the ureter may likewise cause compression. Of interest is the following case in which a relatively small extra-ureteral lesion caused obstruction: A boy, aged 4 years, dead of lymphatic leukemia, showed acute ureteral obstruction with marked upper dilatation due to an enlarged lymph gland compressing the ureter. Of this group of extrinsic lesions, aberrant vessels are probably of greatest clinical interest and importance.

SYMPTOMATOLOGY

The clinical picture is varied and is quite apt to be misleading. Lumbar pain, loin ache, renal colic, hematuria, dysuria and frequency are uncommon or are, at any rate, symptoms difficult to elicit and evaluate in children. Commonly the clinical picture is that of so-called acute pyelitis complicated by an upper respiratory infection or a gastro-intestinal upset. Without

Fig. 7.—Hydropyonephrosis secondary to aberrant vessel obstruction of ureter. Functionless kidney in a girl, aged 6 years. Nephrectomy was performed; course of aberrant vessel indicated by arrows and by absence of pyelographic medium at this point.

repeated urinalysis, a diagnosis cannot be made. From the history, onset and clinical observations, one cannot differentiate this condition from early pneumonia, meningitis, encephalitis, otitis, influenza or any of the acute infections of childhood.

Pyuria is the most constant observation, but one must remember that in cases of acute and chronic disease occasional specimens of urine may be clear or show only albumin. This is commonly explained as due to a block in the ureter. The significant thing is that after the acute condition is cleared up the pyuria persists or recurs.

In the presence of marked obstruction, palpation may reveal a large renal mass. Acute loin tenderness may also be noted. In most of the infants examined, however, diagnostic signs other than pyuria are wanting.

PATHOLOGY

Pathologically, these obstructions give rise to dilatation and infection of the structures above the lesion, and this often leads to total destruction of the kidney. There may also be some inflammatory dilatation of the ureter below the block. We have seen infant ureters dilated to the size of the colon with only a thin rim of scar left to represent the renal parenchyma. The kidney which we removed from the 6 year old patient with aberrant vessel obstruction was fully eight times the normal size, hydropyonephrotic, and quite destroyed except at the polar extremes. Prognosis depends in a large measure on the degree of renal injury, and the treatment is directed toward the prevention of further renal injury.

*Ureteral Obstruction in Infancy: Seventy-Four Cases**

Ages of Patients	Number
Under 3 months	16
From 3 to 5 months	13
From 6 to 11 months	10
From 1 to 2 years	9
From 2 to 4 years	10
From 4 to 6 years	8
Over 6 years	8
	74

	Determined by			Side Involved			Location		
Intra-ureteral	Autopsy	Urologic Examination	Total	Right	Left	Bilateral	Ureterovesical Junction	Ureteropelvic Junction	Body
Stricture	25	18	43	19	16	8	31	13	6
Calculi									
Ureteropelvic junction	2	..	2	2	..	..	..	2	..
Filling pelvis and blocking ureter	2	..	2	2	..	..	..	..	..
In lower ureter	1	1	2	1	1	..	..	..	2
Kink	..	1	1	..	1	..	..	..	1
Reduplication	1	1	2	2	..	..	..	..	..
Idiopathic (neurogenic)	7	1	8	4	4	..	..	..	..
Tumor	2	1	3	1	2	..	..	..	3
Tuberculosis	1	1	2	1	1	..	..	2	..
Hemorrhagic disease of new-born; clots firmly plugging ureter	1	..	1	..	..	1	1	..	..
Extra-ureteral									
Aberrant vessels	1	1	2	2	..	..	..	2	..
Abnormal ureteral insertion	2	..	2	1	1	..	..	..	..
Renal ectopia	2	..	2	2	..	..	..	..	..
Enlarged lymph node	1	..	1	1	..	..	..	..	..
Obstruction by vas deferens crossing	1	..	1	1	..	..	..	..	..
	49	25	74	39	26	9	32	19	12

* Ages range from seven month fetus to 6 years; over 80 per cent were under 2 years.

METHODS OF UROLOGIC DIAGNOSIS AND TREATMENT

The methods of diagnosis and treatment are fundamentally the same whether the patient is an infant or an adult. Localization and obliteration of the infection is the urologic problem. The most accurate of our diagnostic data are obtained by cystography, cystoscopy, ureteral catheterization, renal function tests and pyelography. To date our youngest patient to be examined cystoscopically was a boy 10 weeks of age. Instrumentation and the postexamination period were uneventful.

We do not consider instrumentation in infants until they have resisted intensive medical treatment for from four to eight weeks. Persistent pyuria is the indication in most cases. To us hematuria (excepting hemorrhagic nephritis), colic or tumor indicates immediate investigation. Before instrumentation is attempted, certain data are obtained. A plain x-ray film to rule out stone or spina bifida, a cystogram, one or more phenolsulphonphthalein tests, blood urea and creatinine estimations, blood pressure records and cultures of the urine are routine measures. With these data in hand, one can proceed more intelligently and with less jeopardy to the patient.

Anesthesia is or is not used according to the age of the child and its temperament. We have carried out complete urologic examinations, including pyelography, in 6 year old girls without anesthesia; if the patient is hurt, instrumentation is impossible. We prefer the open drop method and often need less than an ounce of ether, stopping the anesthetic as soon as the instrument is passed. The quiet breathing that follows allows more satisfactory examination of the bladder. Catheterization, the collection of ureteral specimens for chemical, bacteriologic (including culture) and microscopic examination, intravenous dye function tests (indigo carmine is our preference) and pyelography complete the examination. By the time the patient is ready for pyelography, he is well out of the anesthetic and is acutely reactive to renal distention. We rarely perform bilateral pyelography and do not perform any pyelography on the anesthetized child. Wax bulb catheters for stone scratch or other bulbs for stricture detection may be passed as in adults. By confining our examinations to those patients presenting the aforementioned indications, we have found gross urinary lesions in more than 95 per cent of the patients that were studied.

When due to ureteral obstruction, urinary infection can usually be cured by obliteration of that obstruction. Strictures may be dilated by passing two or more small (number 5 F.) catheters up the ureter side by side. We perform pelvic lavage with 0.2 per cent silver nitrate but feel that the satisfactory results we have been able to obtain are due to dilatation rather than to the drug. In one case, a girl, aged 19 months, we performed bilateral ureteral meatotomy through a cystotomy incision, the indication being dense strictures of the intramural ureter with bilateral upper urinary tract dilatation and infection. (We were repeatedly unable to pass catheters larger than number 4 F.). Nephrectomy was performed in two cases for pyonephrosis secondary to obstruction (aberrant vessel, ureteral reduplication). In short, the surgical indications are identical with those in adults and, on the whole, these infants withstand instrumentation far better than do adults. Postinstrumental reactions are fewer and less severe. Because of the greatly diminished caliber of the instruments used in children, it is impossible to carry out certain procedures commonplace in adults (particularly ureteral dilation with large bougies).

SUMMARY

Approximately 2 per cent of infants suffer from ureteral obstruction which predisposes to infection and renal destruction. That pyuria which resists systematic therapy for more than four weeks indicates complete urologic investigation is our emphatic opinion. With this as our criterion, we have disclosed gross urinary tract disease in more than 95 per cent of the patients whom we examined. The same urologic, diagnostic and therapeutic procedure followed in adults should be employed for children and infants except when rendered impossible by the small caliber of the instruments.

33 East Sixty-Eighth Street.

ABSTRACT OF DISCUSSION

DR. HENRY F. HELMHOLZ, Rochester, Minn.: We are greatly indebted to the authors for bringing this important matter to our attention again, because it is the pediatrician who must discover these cases before destruction of renal substance has progressed to such a point that therapeutic procedures of any kind are of practically no value. It is rather interesting in going over the textbooks on pediatrics to notice that in 1894 the pyelitis that was known in infancy and childhood was practically all of the type described so well this morning. Only cases with urinary anomalies are supposed to lead to urinary infection. The early textbooks considered the various anomalies, stones and other conditions as the cause of urinary infection. The advent of Escherich's paper on colicystitis completely changed the conception of pyelitis, and from that time on the pediatrician considered pyelitis a relatively insignificant infection in which the mortality rate was low and from which the patient recovered with or without treatment. Dr. Meyer of Berlin believes that plenty of water and possibly a little sugar is all that is needed to clear up these cases of pyelitis. During this second period, therefore, infections of the urinary tract were considered more or less insignificant. Now the pendulum is swinging the other way. It is evident that there are rather benign infections of the urinary tract which are readily cured, and also infections associated with urinary anomalies that are of grave danger to the life of the individual. As pediatricians it is our duty to discover these cases as early as possible. Unfortunately, if we rely on the presence of infection only to make a diagnosis, we are going to be late in discovering many of these anomalies. We should call in the urologist in every case of pyelitis in which the condition does not clear up after from four to six weeks of intensive treatment. If there is blood in the urine not explained by nephritis, if there is a palpable mass in the kidney or bladder region, or if there is colic, the urologist should be called immediately. In this way we should solve the problem of this second group of infections.

DR. B. C. CORBUS, Chicago: The urologist is often taxed to the utmost in making a diagnosis. It has been necessary to use anesthesia in order to examine children cystoscopically. This is often followed by nausea, vomiting and a delay in the excretion of urine which makes it impossible to obtain kidney function tests. During the last year I have repeatedly examined little girls as old as 4 years by using ⅙ grain (7 mg.) of pantopium hydrochloricum (pantopon) hypodermically; those around 6 years were given ⅛ grain (11 mg.), and those over 9 years, ⅓ grain (21 mg.). Cocaine, 0.5 per cent, and sodium bicarbonate were used locally in the urethra. In no instance was any toxic effect noticed. From a close survey of the case reports and autopsy records published, it has been my impression that many children that present at birth bilateral or unilateral congenital obstruction above the ureteral ostia die within the first year. This observation has been confirmed by Dr. Bilger's splendid anatomic specimens. I believe that acquired stricture of the ureter in children does exist but it does not often manifest itself before the fifth year. In my opinion, chronic urinary infection in children who survive after the first few years of life is many times due to obstruction in the urethra, either anterior or posterior, or at the vesical neck. With the present method of cystoscopic examination, it is impossible to visualize the posterior urethra in these children, although one can get a fair view of the internal urethral orifice. The classification of the different congenital anomalies that cause urethral obstruction is not obtained by cystoscopic examination, as one would perhaps believe from the remarks of some of our confrères, but, in a large measure, from postmortem observations. I think that vesical neck obstruction plays a larger rôle in chronic urinary infection. To me the one thing we should do before we attempt cystoscopy is cystography. Often this will reveal a great deal, and a determination of the residual urine and the passing of a bougie à boule will many times completely clarify the diagnosis. In all chronic urinary infections, the bladder neck and posterior urethra should be examined thoroughly before the upper urinary tract is manipulated.

DR. A. E. GOLDSTEIN, Baltimore: Several years ago in autopsy examinations I found numerous lesions of the urinary tract in both children and adults. Children with fever, nausea and vomiting have more than just gastro-intestinal conditions, as they frequently are diagnosed. From a urologic standpoint, or from the standpoint of the urologist, the presence of blood and pus in the urine is of rather great consequence. I am of the opinion that pediatricians do not pay sufficient attention to pus, blood or albumin in the urine. Even in cases in which the urine is normal, or rather in which there is no pus or blood in the urine, I have found frequent instances of urologic conditions, comprising diseases of the kidney, bladder or ureter, as has been demonstrated here today. The one thing that is clear is that the lesions that exist in children are the same as those that exist in the adult. Therefore, why should they not be sought for earlier, long before uremic coma occurs? In many instances these children can be saved. Several fallacies exist among pediatricians. First, there is the theory that children cannot be examined cystoscopically. I have used the cystoscope in infants as young as 8 days, and in children up to 16 years of age. Second, there is the idea that the treatment of pyelitis in children should consist of forcing fluids or giving methenamine or hexylresorcinol. In my opinion, both these drugs are of no value whatever without the assistance of cystoscopic treatment. The third fallacy is that all children with nausea, vomiting and fever have intestinal disturbances. Frequently the nausea, vomiting and fever are merely the early stages of some urinary condition. What we need in these children, first, is an early urologic examination. Secondly, after the diagnosis has been made, they need good drainage, irrespective of whether the lesion is in the kidney, ureter or bladder.

DR. FRANCIS H. REDEWILL, San Francisco: If we can prevent these conditions, we will be more than interested. Osborn and Mendel have shown that if the vitamin A content of food is decreased, calculi and ulcers form in the bladder. McCarrison found that if persons were given milk, fruits and nuts, and no meats or white breads, they did not have ulcers or any other pathologic condition in any part of their bodies. He gave thirty-six monkeys nothing but polished rice and white bread, and they developed ulcerated conditions of the duodenum, stomach and bladder, and calculi. On the other hand, when he changed the diet and pushed vitamin A, he cleared up those conditions. Besides that, we noticed that duodenal ulcers can be cleared up by injecting parathyroid extract. In my work with bladder conditions, I injected parathyroid and used these vitamins in clearing up some very pernicious conditions of the bladder. Dr. Bidding of San Francisco told me, when I found that I could not clean up these conditions by pushing vitamin A alone, that a condition of symbiosis exists. One has to give vitamins A, B, C, D and E, as each vitamin acts on the other. I really believe that these congenital conditions can be corrected and prevented by feeding the mother the proper diet and parathyroid. The treatment can be regulated by blood calcium tests. I believe that in the next few years the test for blood calcium will become as important as the test for blood urea.

DR. W. F. BRAASCH, Rochester, Minn.: I wish to call attention to a factor in the interpretation of the urograms accompanying chronic infection of the kidney and ureter which has been overlooked; namely, that dilatation of the ureter and pelvis is not necessarily caused by obstruction but may be the result of atony. This atonic dilatation may be caused by diffuse infection in the ureteral wall with consequent diminution of peristalsis and atony. It is open to question whether any amount of dilating would be of any help in this condition. It probably explains why, in many of the cases of chronic renal infection in children, as well as in adults, improvement has not been shown following ureteral dilation. I would also say that not all urologists are entirely agreed that ureteral dilation is indicated as a routine treatment of pyelonephritis in children. I do not believe that every child who has infected kidneys should be treated cystoscopically. The great majority of these patients will get well with the aid of the time-honored and modern therapeutic methods that pediatricians usually employ. In only the occasional case that does not clear up and in which there is definite evidence of ureteral obstruction are we justified in using cystoscopic methods of treatment. No one can deny that actual stricture of the ureter does occasionally occur in these cases, and when it is present dilation is frequently of much value. When atonic dilatation is present, dilating the ureter will not accomplish much.

DR. WILLIAM E. STEVENS, San Francisco: It is gratifying to observe the increasing interest of pediatricians in pathologic conditions of the urinary tract during infancy and childhood. Urinary tract disease was present in 232, or about 3 per cent, of the last 7,447 cases seen in the pediatric department of Stanford University School of Medicine. A large number of these patients were admitted simply because they required circumcision or tonsillectomy. About 30 per cent of these 232 patients suffered from a colon bacillus pyelitis. One half were cured by conservative treatment. Following cystoscopy, catheterization of the ureters and irrigation of the renal pelves with silver nitrate solution, the urine became microscopically negative in almost 100 per cent and culturally negative in about 80 per cent of the uncomplicated cases of pyelitis. In the investigation of the urinary tract the urethra should not be overlooked. Posterior urethral valves in males and strictures of the urethra in both male and female children are not uncommon. The latter occur more often at the external urethral meatus. In the case of a child, 5 weeks old, who died, the autopsy revealed hydronephrosis with destruction of the right kidney; hypertrophy and subacute pyelonephritis of the left kidney; congenital malformation of the ureters; lengthening and dilatation; stricture at the left ureteral orifice; acute cystitis; acute urethritis; left hydrocele; atrophy of the left testis; left inguinal hernia; septicemia; *B. coli* infection, and petechial hemorrhages in the skin. This case is unique, not only because of the early age at which symptoms of urinary tract disease appeared but also because of the multiplicity of congenital lesions. Age is no longer a contraindication to cystoscopy, ureteral catheterization, functional kidney tests or even pyelo-ureterography.

DR. CLIFFORD SWEET, Oakland, Calif.: I am convinced that healthy children have infections of the urinary tract many times, perhaps, without any harm. I agree with those who say that urinary tracts should be studied carefully if an infection does not clear up within a reasonable time, but there is another point of importance, and that is a history as to whether or not this urinary tract infection has found serious lodgment more than once. The mere fact that one can clear up a urinary tract infection by medical treatment and by improving the general condition of the child is no proof that there is not some abnormality in that urinary tract. Periodic examinations of the urine should be made. If I did not misunderstand Dr. Campbell, he said that a child of 6 years was the youngest in whom a congenital megalo-ureter and complete destruction of the kidney with surgical removal had been recorded. My colleague, Dr. Meads, removed the kidney and a congenital megalo-ureter from a girl, aged 22 months. This child had been under our care since birth. She had had repeated attacks of fever with pus and bacteria in the urine. Several attacks had followed upper respiratory tract infection. The last and most severe attack followed whooping cough and otitis media. She had a very large congenital megalo-ureter, with a large hydronephrosis on the affected side. That kidney, being no longer of value, was removed. The mere presence of pus in the urine during acute illness means little. When pus is found during acute illness, the urine should be examined several times, and especially after the acute infection has cleared up, in order to determine whether or not it is of only passing consequence.

DR. MEREDITH F. CAMPBELL, New York: Regarding the frequency of urinary tract anomalies in the series of autopsies which we studied at Bellevue, namely, 2,420 cases, we found that 176, or a little more than 7 per cent, showed urologic anomalies. Some of these showed more than one type of anomaly, and of these, thirty-one had additional anomalies in other parts of the body, such as cardiovalvular lesions and diaphragmatic hernia. When we first started this work at Bellevue, a few pediatricians held up their hands in horror because we were using the cystoscope in babies. However, the large number of pathologic urologic conditions found and the striking clinical results obtained have so interested the pediatric department in the work that for the next year Columbia University has assigned two fellows to work with us in the study of urinary tract infections. Before we began this work intensively, we seldom examined more than two babies a year urologically. At the present time we are examining from six to ten a week. These babies stand instrumentation far better than adults do. Their postinstrumental reactions are less severe, as a whole, and they are also fewer. We have now made more than 500 urologic examinations in children, and we have no cause to hesitate in continuing these procedures. We have tried giving chloral by rectum instead of ether (open drop) anesthesia, but have not been able to get the required anesthesia. We are heartily in accord with what Dr. Braasch said. In our series we have nine cases that very definitely fall into his classification of atonic dilatation without demonstrable organic obstruction. The cases in which we do instrumentation and ureteral dilation are only those in which we are able to demonstrate a definite obstruction; that is, all of these cases have shown marked resistance to the passage of a number 4 catheter. A number 4 catheter is 1⅓ mm., which is very small. Such a catheter may be passed up the normal infant ureter without difficulty. In answer to Dr. Sweet, the patient in whom nephrectomy was performed was a child who had an aberrant renal vessel. I believe that a case has been reported in the literature of nephrectomy in a child, aged 23 days, but this was because of an acute infection, not an aberrant vessel. We do not use the cystoscope in every patient who has pyelitis, as relatively few have pyuria that resists medical treatment for from four to six weeks.

YELLOW FEVER VIRUS

TRANSMISSION OF BRAZILIAN STRAINS TO MACACUS RHESUS AND MACACUS CYNOMOLGUS: PRELIMINARY REPORT *

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The observations of Stokes, Bauer and Hudson [1] that *Macacus rhesus* can be easily inoculated with the virus of yellow fever in Africa and that this disease is not due to *Leptospira icteroides* Noguchi, have stimulated renewed interest in research on yellow fever in America, where most of the classic studies on this disease have been made.

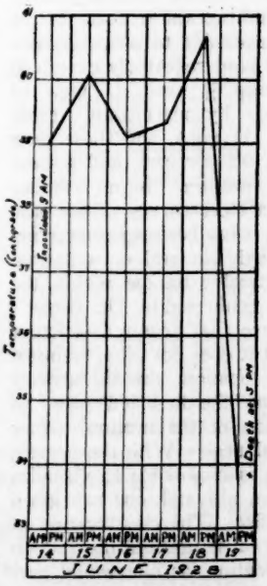


Chart 1.—Temperature chart of monkey 8 (Macacus rhesus).

The occurrence in June, 1928, at Rio de Janeiro of several cases of yellow fever presented the opportunity for the experiments reported here.

Only four *Macacus rhesus* monkeys were available in Rio de Janeiro when the first cases of yellow fever appeared. One of these (monkey 1) was inoculated with 2 cc. of a culture of *Leptospira icteroides*, Palmeiras strain, isolated by Noguchi and his co-workers; [2] the other three (monkeys 3, 4 and 5) were inoculated with blood drawn from patients with yellow fever two and one-half, three, and three and one-half days, respectively, after the onset of the disease. These four animals all remained well.

Another lot of four monkeys of the same species was obtained from São Paulo, and these, together with one *Macacus cynomolgus* obtained in Rio de Janeiro, were

* From the Oswaldo Cruz Institute.

1. Stokes, A.; Bauer, J. H., and Hudson, N. P.: The Experimental Transmission of Yellow Fever to Laboratory Animals, Am. J. Trop. Med. 8: 103-164 (March) 1928.

2. Noguchi, Hideyo; Miller, H. R.; Torres, O.; Silva, F.; Martins, H.; Ribeiro dos Santos, A.; Vianna, G., and Bião, M.: Experimental Studies of Yellow Fever in Northern Brazil, Monograph 20, Rockefeller Institute of Medical Research, August, 1924.

used for further experiments. Definitely positive results have thus far been obtained with the *Macacus cynomolgus* (monkey 7) and one with *Macacus rhesus* (monkey 8), while, at the time of writing, the other animals are still under observation.

Monkey 8 was inoculated June 14, with the blood of two patients with benign but typical yellow fever (D. A. and N. M.). D. A. was bled forty-two hours and N. M. twenty-nine hours after the onset of the disease. Five cubic centimeters of blood was given intramuscularly and 5 cc. intraperitoneally. The temperature of the animal rose to 40.6 C. on the fourth day after inoculation, followed by collapse, subnormal temperature, and death on the fifth day. The daily temperature of this animal is given in chart 1.

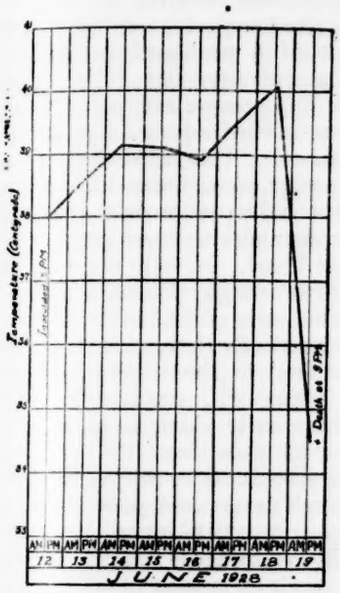

Temperature (Centigrade)
Inoculated 5 PM
Death at 8 PM
AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM
12 13 14 15 16 17 18 19
JUNE 1928

Chart 2. — Temperature chart of monkey 7 (Macacus cynomolgus).

Autopsy did not show any definite icterus externally. There were no large hemorrhages; the stomach contained a small amount of dark mucoid material giving positive guaiac reaction. The lungs were normal; the heart was pale and flabby. The liver was mottled and pale yellow throughout, except for two small areas on the anterosuperior surface of the left lobe which were somewhat congested; the lobular markings were distinct. The spleen was somewhat enlarged but otherwise normal in appearance; the kidneys were slightly swollen, smooth, and somewhat icteric.

Microscopically, the liver showed a heavy deposit of fat uniformly distributed throughout the lobules; there was congestion and vacuolization of hepatic cells, and extensive necrosis, limited mostly to the midzone and not involving the cells immediately surrounding the portal spaces. The kidneys presented lesions of mild acute nephritis, cloudy swelling with desquamation, and necrosis of the epithelium and hyaline casts, especially in the straight tubules.

Monkey 7 (*Macacus cynomolgus*) was inoculated, June 12, with blood from two patients with mild typical cases of yellow fever (J. K. and N. M.). J. K. was bled fifty-nine, and N. M. twenty-nine, hours after the onset of the disease. It will be noted that blood from the latter patient was also used for the inoculation of monkey 8, as already described. Five cubic centimeters was given intramuscularly and 5 cc. intraperitoneally. On the fifth day after inoculation, this animal showed slight fever and loss of appetite; on the sixth day the temperature registered 40 C., followed by subnormal temperature, collapse, and death on the seventh day. The daily temperature of this animal is given in chart 2.

Autopsy did not show definite icterus externally. The lungs showed slight hyperemia. The heart was pale and flabby. The stomach contained a considerable amount of chocolate brown material. There were petechial hemorrhages in the mucosa of the stomach and duodenum. The contents of the lower part of the small intestine showed a considerable amount of altered blood, similar to that found in the stomach, and there were petechial hemorrhages in the mucosa. The liver was very pale yellow and, on section, fatty in appearance. The spleen was slightly enlarged but otherwise normal. The kidneys were very pale and jaundiced and apparently somewhat swollen.

Microscopically, the liver showed the typical pathologic changes of yellow fever in the midzone areas, as described by Rocha Lima in man. The kidneys show intense acute nephritis with calcareous and hyaline casts. There was fatty degeneration and necrosis of the epithelial cells in the straight as well as in the convoluted tubules.

In the blood, organs and urine of infected monkeys, *Leptospira icteroides* could not be demonstrated by direct examination, culture or animal inoculation.

SUMMARY AND CONCLUSIONS

Yellow fever occurring in Brazil has been successfully transmitted to *Macacus rhesus* and also to *Macacus cynomolgus*. The gross and microscopic pathologic changes produced by the South American virus in these animals are fully comparable to the lesions produced by the West African virus in rhesus monkeys, as described by Stokes, Bauer and Hudson.[1] Furthermore, comparison of sections of liver from *Macacus rhesus* infected with West African virus, brought to Brazil by Dr. Carlos Chagas from the Pasteur Institute of Paris, has not shown any distinguishing features in the lesions. *Leptospira icteroides* Noguchi was not found in two infected monkeys studied.

Further studies are being undertaken which will be the subject of a future detailed report.

NOTE.—Soon after the preparation of this report the following developments occurred:

Macacus rhesus 9 inoculated with blood from patients J. K. and R. M. died on the fifteenth day after inoculation. Autopsy showed lesions typical of yellow fever, liver and kidney hemorrhage into the stomach and intestine, and albuminuria.

Macacus rhesus 35 died six days after exposure to ten *Aedes aegypti* mosquitoes which had fed seventeen days before on patient N. M. on the second day of illness. Autopsy showed icterus and liver and kidney lesions typical of yellow fever.

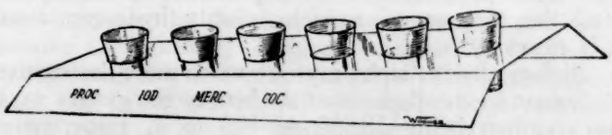
Clinical Notes, Suggestions and New Instruments

SAFETY DRUG RACK FOR THE OPERATING ROOM

SAMUEL IGLAUER, M.D., CINCINNATI

The rack illustrated here is designed to prevent mistakes in the use of drugs in the operating room. Fatal cases are on record[1] in which, for example, a cocaine solution has been substituted for a procaine solution.

The rack consists of a single piece of rustless sheet metal bent over in its long axis so as to form a stand which is perforated on top by a series of holes for medicine glasses. The abbreviated names of the drugs commonly employed are stamped



Safety drug rack for use in operating room.

into the front face of the metal frame, and each drug is placed in the container opposite its own name. Thus both the surgeon and the instrument nurse can tell at a glance from which container the drug is being withdrawn. As an additional precaution a toxic solution such as cocaine may be tinged with methylene blue (methylthionine chloride-U. S. P.) or fluorescein, or a specially colored medicine glass may be used. Since the rack is made in one piece, it can readily be sterilized by boiling.

707 Race Street.

1. Mayer, Emil: Toxic Effects Following the Use of Local Anesthetics, J. A. M. A. 82: 876 (March 15) 1924.

Special Article

OCCUPATIONAL POISONING IN MANUFACTURE OF LUMINOUS WATCH DIALS

GENERAL REVIEW OF HAZARD CAUSED BY INGESTION OF LUMINOUS PAINT, WITH ESPECIAL REFERENCE TO THE NEW JERSEY CASES

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(Concluded from page 473)

SPECIAL SYMPTOMATOLOGY

The Anemias.—The deposits in the bones, because of the great insolubility of the sulphates of radioactive substances, act as fixed deposits from which they continually emit irritative rays that constantly bombard, day after day, month after month, and year after year, the adjacent blood-forming centers, producing in time a severe and often fatal anemia.

The nature of the radiation is very important. Approximately 95 per cent of the rays coming from these bone deposits are alpha; the remaining 5 per cent consist of beta and gamma rays.

The alpha rays, which consist of the nuclei of helium atoms containing two positive charges (He^{++}), are ejected from the radioactive substances with great force, attaining an initial volicity on leaving the extranuclear electronic field ranging from one-twentieth to about one-twelfth that of light. They represent the fastest mass occupying objects yet known. Lind [2] says, "The alpha particle is the most potent agent yet known to science and in all probability will remain so, as it is hardly conceivable that any means will ever be devised of imparting to ponderable matter a velocity exceeding that at which the alpha particle is expelled from the atomic nucleus." It has great disruptive powers. It decomposes water into hydrogen, oxygen and hydrogen dioxide, and hydrochloric acid into chlorine and hydrogen. These chemical changes are due to the terrific impact of the alpha particle and the atom, as it usually passes through or near the electron system surrounding the nucleus and jerks off one electron. The chemical reaction resulting from this ionization is of the ordinary molecular character. On rare occasions the nucleus of lighter atoms may be squarely struck by the alpha particle, with consequent atomic disruption and the ejection of a high velocity hydrogen atom (H rays).

Biologically the alpha rays are much more destructive to human tissues than either the beta or the gamma rays, the relation being 10,000 to 100 to 1, respectively. Therefore, radioactive elements in such small amounts that beta gamma radiations are almost negligible still produce, through their alpha radiations, intense physiologic effects, if given by mouth or by vein.

In no other previous record of body injury due to radiation has the alpha ray played such a conspicuous part as in these cases, since it ordinarily is easily screened by the radium container or the skin in all forms of external radiation. This is the first time in the history of radiation that the alpha ray has been allowed to play continually on such vital centers as the blood-forming organs. Alpha rays are easily screened and filtered out by even a thickness of paper. In the body they are almost completely absorbed by 1 mm. (one twenty-fifth inch) of body tissues. Because of the proximity of the blood-forming centers to the bones and bone sinusoids of the reticulo-endothelial system, the distance is not too great to prevent the disastrous effects of alpha radiation on these centers. Furthermore, as the charge of the alpha particle is positive and the colloid systems of the erythrocytes are strongly electronegative [28] and are permeable only by an anion, the red cells are particularly liable to injury.

In the early fatal cases, the morphology of the blood toward the end was that of a profound leukopenic anemia suggestive of the regenerative type. The color index was often one plus, and a large cell anisocytosis with many macrocytes was not infrequent. Occasionally a megaloblast was found. The leukocytes were always diminished in number, a definite leukopenia existing, the lymphocyte being the predominant cell. In some cases the polymorphonuclears were practically absent from the peripheral blood. In only one of five fatal cases was there a hemorrhagic diathesis, and in this case the megakaryocytes were undoubtedly affected as the blood platelets were markedly decreased. Petechias which sometimes occurred in the terminal stages were due chiefly to the superadded sepsis. In spite of the resemblance of these early cases to pernicious anemia, there was little or no evidence of the so-called increased hemolysis. The icterus index was normal or low, and the van den Bergh tests were negative. In the cases in which autopsies were performed there was no pronounced increase in hemosiderin deposits in the liver, spleen and kidneys, such as is seen in addisonian anemia.

As anatomic evidence that the anemias in these early fatal cases were not of the aplastic or aregenerative type a dark red marrow was found throughout the femurs in five cases. I specify the marrow of the femur, as I believe that this is one of the few locations in which the accurate interpretation of the type of marrow is reliable.

Microscopic examination of paraffin sections from the red marrow of these early cases showed a regeneration of the megaloblastic type. The predominating cell was interpreted as belonging to the erythroblastic series, very numerous normoblasts and megaloblasts being present, many containing little or no hemoglobin. The fatty tissue of the marrow was almost entirely replaced by this hyperplastic marrow. Megakaryocytes were very abundant in most cases. Eosinophils and eosinophilic myelocytes were very numerous.

The occurrence of this apparently hyperplastic marrow was puzzling, since, heretofore, in the report of anemias due to undue exposure to x-ray and gamma radiation from radioactive substances, they have been usually described as distinctly aplastic in type. As in practically none of these cases was necropsy performed or study of the bone marrow made, this conception is purely a clinical one and may not always be substantiated by the facts as we know them.

I had the opportunity of studying the bone marrow sections in these cases with Drs. Edward Krumbhaar and Douglas Symmers. We agreed that there were many cells which could not be identified with certainty. It was impossible to say whether these cells were of erythroblastic or myeloblastic origin, or whether they arose from the undifferentiated metrocyte. Oxydase stains in such a dilemma usually are of little value. The fact that the marrow was intensely red would seem to be against the predominating cell being myeloblastic

28. Evans, Archibald: Personal communication to the author.

in origin. Unfortunately smears from the marrow were not taken, which method is perhaps better than paraffin sections for accurate identification. The question of a myeloblastic marrow which may appear red to the naked eye cannot be lightly dismissed, when it is recalled that cases of undue exposure to radiation in which a hyperproduction instead of a leukopenia occurs have been reported. This has been of sufficient degree to produce a leukemia in several instances. The difficulty in the proper interpretation of bone marrow is well recognized and the development of new chemical stains and the study of the marrow during life in various stages of anemias is greatly needed. In one of Flinn's [22] patients, a dial painter who worked in a Connecticut plant and died in New York, the condition of the marrow presented the same general appearance as is seen in chronic benzene poisoning. Pappenheimer,[29] who performed the autopsy in this case, told me that the marrow was aplastic.

In the case of von Sochocky, numerous blood examinations made during his last illness never showed the slightest attempt at regeneration, even after the administration of a liver diet. The anemia was definitely aplastic throughout its course, the red cells never showing the anisocytosis and macrocytosis seen in the earlier cases. The latter cases, therefore, appear to resemble more closely those previously described in the literature.

In the excellent review by De Laet [27] on the deleterious effects from the professional handling of radioactive substances and x-rays, he cites the following cases:

Aubertin and Bordet (1909) examined the blood of radiologists and animals after irradiation and found persistent leukopenias often followed by a slight polynucleosis with an eosinophilia.

Vaquez relates the case of a radiographer who died in 1911 of myeloid leukemia.

Mottram (1920) states that a single exposure to gamma rays of radium may produce injury to the blood-forming organs. Persistent exposures may lead to an aplastic anemia and in rare instances to a myelogenous or even lymphatic leukemia.

Mottram and Clark (1920) found in irradiated animals leukopenias alternating with periods showing a leukocytosis.

Mottram (1920) reports three deaths among the personnel of the London Radium Institute from exposure to radium alone. All three patients had leukopenic anemias. No postmortem examinations were made.

Ross (1921) thinks that the gamma rays from radium are more penetrating and cause more injury to the blood-forming organs, particularly the leukoblastic centers, than do the x-rays.

Caffaratti (1923), in examining the blood of fifty radiologists, found leukopenias which often occurred early and were persistent. Most of the subjects recovered when they withdrew from exposure.

Williams (1923), in a study of the personnel measuring radioactive substances in the U. S. Bureau of Standards, found leukopenias and mild anemias.

Amundsen (1924) found leukopenias in fifteen subjects coming in contact with radioactive substances.

Rud (1924) found leukopenias in six physicians, six nurses, two technicians and three assistants attached to an x-ray department, due to exposure to x-rays and radium.

Faber (1924) relates the case of the radiologist Nordenhoff, who died in 1922 from an aplastic anemia.

29. Pappenheimer, A. M.: Personal communication to the author.

Carman (1924) reports the case of Dr. Mills, a radiographer, who had an acute appendicitis and lymphatic leukemia.

Weil and Lacassagne (1925) report the death of two workers who were engaged in the separation of thorium X from mesothorium in the same laboratory. One died of an aplastic anemia and the other from myelogenous leukemia.

Weil (1926) described a case of myelogenous leukemia following several injections of thorium X.

Jagie, Liebenrock and Scharz, cited by Jaulin (1927), observed four persons exposed to x-rays and radioactive substances who died from lymphatic leukemia.

Jaulin (1927) reviews seventeen deaths of subjects coming into contact with radiations.

Brule and Boulin [30] (1925) state that only a few cases of pernicious anemia due to radium can be found in the literature, but this severe disease is without doubt more frequent than published reports indicate.

Carman [31] states that Dominici succumbed to an aplastic anemia due to the habit of carrying packages of radium in his pockets, and that Tiraboschi, an Italian roentgenologist, died of an essential anemia due to exposure to x-rays.

It is worthy of note in a review of the literature that, with the exception of two cases reported by Weil and Lacassagne and one by Reitter and Martland, no autopsies were performed in any of the cases. To allow the opportunity of collecting accurate data for the future protection of workers in radioactivity to be wasted is quite incomprehensible.

The opinions of different authorities all agree that contact with radioactive substances and x-rays frequently produces, aside from lesions in the external organs such as the skin, deep and often profound alterations, of which the principal objective symptoms are usually a leukopenia, more rarely a leukemia, an anemia usually of the aplastic type but sometimes with malformations of the red cells suggesting an anemia of the pernicious or regenerative type, a fall in systolic blood pressure and sterility. These alterations may occur very early after the first contact and be mild in character and curable, or, when once established after undue exposure, they may persist even after cessation of the exposure.

Even with the most modern methods of protection, such as proper screens, frequent shifting in work, vacations, and proper ventilation, all workers with x-rays and radioactive substances are exposed to the deleterious effects of radiation and are potential candidates at any time for the development of a serious and fatal anemia or leukemia. In these anemias, if the leukoblastic centers for the formation of the granulocytes bear the brunt of the injury, sepsis, bone necrosis, endocarditis or septic bronchopneumonia are apt to supervene. If the megakaryocyte is destroyed, the diminution in blood platelets causes the hemorrhagic diathesis to predominate, and hemorrhages from the mucous membranes, bowel, lungs and kidneys occur. If the main injury is to the erythroblastic centers, the symptoms of a profound anemia of the aplastic and sometimes of the pernicious types result. Combinations of all occur.

I am at loss to explain the exact modus operandi of the anemias in these cases. They differ in some

30. Brule, M., and Boulin, R.: Un cas d'anémia aplastique provoquée par le radium, Bull. et mém. Soc. méd. d. hôp. de Paris **49**: 528 (March 27) 1925.

31. Carman, R. D., and Miller, A.: Occupational Hazards of Radiologist, Radiology **3**: 408-419 (Nov.) 1924.

respects from those already recorded in the literature, and this is probably due to the fact that the alpha particle is the important etiologic factor. Why was a red, regenerating marrow present in these early cases? A discussion of this question demands consideration of recent advances in the study of pernicious anemia.

Although Cohenheim in 1876 considered pernicious anemia as due primarily to a disturbance in blood formation, most writers have looked on the disease as a hemolytic anemia. Their arguments were based on the evidence of increased blood destruction, such as an increased icterus index, positive indirect van den Bergh tests, increased bilirubin derivatives and the presence of increased hemosiderin deposits in the spleen, liver and kidneys. The hyperplastic red marrow found at autopsy was considered an attempt to overcome this increased destruction. This view was considered by most observers in the last ten years as settled and indisputable.

The colossal advance made in the last four years in the understanding of the nature of this disease has been due almost entirely to the work of American investigators. Outstanding research of which American medicine should be proud has been accomplished by McCollum [32] on the close resemblance of sprue, pellagra and pernicious anemia and the beneficial effects of liver soup in sprue; by Whipple and Robscheit-Robbins [33] on blood regeneration in severe anemias and the favorable influence of liver, heart and skeletal muscle in the diet; by Minot and Murphy [34] on the treatment of pernicious anemia by a liver diet; by Minot, Cohn and others [35] on the treatment of the disease by liver fractions; by Peabody [36] on the histologic study of the bone marrow in different stages of the disease by using the method of bone marrow puncture devised by Ghedini and elaborating on the observations already made by Zadek, showing that during the remissions the marrow returns to its normal state; and by Castle and Locke [37] on the importance of achylia gastrica as preventing the formation of the specific substance which is needed to cause maturation of the erythroblastic centers. Nobel prizes have been awarded for work of less importance.

Haden [38] says:

> We must look on pernicious anemia as due primarily to an inability of the bone marrow to mature red cells resulting from the lack of some specific substance and thus classify it among the deficiency diseases. Tissues other than the liver, such as the kidney, can furnish the specific substance, so the deficiency is not necessarily a hepatic one. It is more likely due to a failure of absorption, or an elaboration in the intestinal tract of the specific maturating substance, perhaps resulting from a long existent achlorhydria.

The increased amounts of bilirubin in the blood, tissues and secretions represents not evidence of increased hemolysis but an excess of pigment over what the marrow can use in active stages of the disease.

In the study of the obscure anemias the appearance of the marrow at autopsy can no longer be taken as conclusive. The marrow is undoubtedly subject to all sorts of terminal revolutions. I have just had the opportunity of observing at autopsy a red marrow of the regenerating type in a man who died from an aplastic anemia due to chronic benzene poisoning. He was a dope man in an artificial leather plant. Two other members of his family who worked in the same plant have died from chronic benzene poisoning. All three had aplastic anemias during life with marked leukopenias, thrombocytopenias and bleeding from the mucous membranes, gums and intestinal tract. Yet from the previous recorded cases of benzene poisoning hardly any one would believe me when I state that this man died from the poisonous effects of benzene.

Is the anemia in these cases of radium poisoning essentially an aplastic one due to destruction of the erythroblastic centers by continual bombardment of irritative rays, particularly alpha? Was there an heroic last attempt in the early cases to produce red cells, causing at autopsy a red marrow? Would these early cases, if death had not supervened, finally have become truly aplastic at autopsy as did Pappenheimer's case? All these ideas are purely speculative from our present knowledge.

The Jaw Necroses.—What, then, is the explanation of the extensive necroses in the mandible and often the maxilla seen in the early fatal cases, and absent, recovered from, or never a prominent symptom in the patients now alive?

In some of these cases this necrosis would precede the appearance of a severe anemia; in other cases it would develop after the anemia had existed for some time. There does not seem to be any connection between the two. In our early work,[1] in 1925, we were at a loss to explain the localization of this extensive necrosis in these bones. As the jaw necrosis was the outstanding feature of the early cases, our attention was fixed mainly on this symptom and little was paid to changes in the other bones of the skeleton, although an extensive coxa vara was noted in one case. The necrosis of the jaw was at that time thought to be due to local irritative radiation at the portal of entry, produced by clinging particles of radioactive substances on the gums, in the crevices and interstices between the teeth and the bone, activated by increased bacterial virulence of the organisms in the mouth caused by the irritative or stimulative effects of small amounts of radiation. These bones were thought to contain a greater amount of radioactivity than did other bones of the skeleton. It was not until I began to see the later cases that I realized that this was not the correct interpretation of the lesion. In the later cases, localized pain had occurred in other bones and destructive lesions were demonstrated by the roentgenograms. These lesions were particularly noticeable in bones exposed to trauma, like the scaphoid in the feet (tight shoe), and those carrying considerable weight, such as the spine and the heads of the femurs. These lesions so far have never become infected. Autopsies had also shown that the jaw did not contain any more radioactivity than did other bones. In other words, the lesions were quite evenly distributed over the entire skeleton, although in each individual bone the distribution, while diffuse, was distinctly patchy and concentrated in areas. This distribution was demonstrated by photographic methods. Furthermore, histologic studies of bones, in which during life there had been localized pain and a roentgenographic appearance unlike that seen in any other disease, showed that the

32. McCollum, E. V.: The Newer Knowledge of Nutrition, ed. 2, New York, Macmillan Company, 1922.
33. Robscheit-Robbins, F. S., and Whipple, G. H.: Blood Regeneration in Severe Anemia, Am. J. Physiol. **72**: 408 (May) 1925.
34. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 471 (Aug. 14) 1926.
35. Minot, G. R.; Cohn, E. J.; Murphy, W. P., and Lawson, H. A.: Treatment of Pernicious Anemia with Liver Extract, Am. J. M. Sc. **175**: 599 (May) 1928.
36. Peabody, F. W.: Am. J. Path. **3**: 179 (May) 1927.
37. Castle, W. B., and Locke, E. A.: Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia, read before the Annual Meeting of the American Society for Clinical Investigation, Washington, D. C., April 30, 1928.
38. Haden, R. L.: The Essential Nature of Pernicious Anemia, editorial, J. Lab. & Clin. Med. **14**: 189 (Nov.) 1928.

marrow of these bones was replaced by a gelatinous, myxomatous, acellular loose fibroblastic tissue similar to that described by Ewing [39] in bones exposed to heavy external irradiation.

From these observations it was more logical to interpret the jaw necrosis as being primarily due to a radiation osteitis similar to that occurring in other bones. Owing to the proximity of the mouth, which is the dirtiest part of the body, and to the fact that the jaw bones have embedded in them the teeth, which act as foreign bodies, and because of the common occurrence of pyorrhea and root abscesses, the jaws are easily subjected to a superadded bacterial infection, in these cases in bones already the seat of a previous disease. The slightest dental intervention may start an intractable necrosis of these bones.

The Late Cases.—In the patients now living, the severe anemias and extensive jaw necroses which were the outstanding features of the early cases have not occurred up to the present time. The disease is now present in a milder form, undoubtedly as the result of the natural uninfluenceable decay of the mesothorium, which formed the largest percentage of the original deposits. There is a consequent diminution in the amount of irritative radiation. The main symptoms now are crippling bone lesions, the result of radiation osteitis. While it appears that many of these girls will escape a fatal outcome, one cannot be too sure of this, as many show considerable radioactivity at the present time.

DIAGNOSIS DURING LIFE

I have found that the easiest and most reliable method with which to detect the presence of radioactivity in the human body during life in this disease is by utilizing the expiratory air, for the demonstration of either the presence of emanation by means of an electrometer or the presence of the alpha particle by means of scintillation methods. As the total amount of radioactive substances deposited in the entire skeleton is small, ranging from 14 to 180 micrograms in the patients examined at autopsy, and because the human body cannot be rolled up like a ball and placed opposite the electrometer, the detection of these small amounts of radioactivity by the gamma electrometer is not ordinarily possible. This is especially true when it is recalled that only a small amount of the radiation coming from these deposits is due to gamma rays, and that these rays must travel through a considerable amount of flesh before they leave the body, most of them being absorbed in this passage.

METHODS FOR DETECTION OF RADIOACTIVITY

The following, briefly described, are various methods available for the detection of radioactivity in the human body.

Demonstration of Emanation in Expired Air.—Working with Conlon and Knef I first demonstrated the presence of emanation in the expired air of these patients on June 16, 1925. The only previous demonstration of emanation in the exhaled air of the human being that I know of was made in 1915 by Seil, Viol and Gordon [40] after the experimental ingestion of 50 micrograms of radium (element) by mouth. They said: "Radium taken into the body is continually disintegrating with the formation of the gaseous radioactive substance, radium emanation. This gas is carried by the blood to the lungs, where the emanation passes out of the blood by diffusion, and is lost from the body in breathing."

The demonstration of emanation in the expired air is not a difficult one but it should be performed by a physicist well versed in radium work. The subject passes the expired air by means of a rubber tube through a series of moisture absorption bottles containing calcium chloride and sulphuric acid into the ionization chamber of an electrometer for a period of five minutes, the stopcocks on the instrument then being closed. I usually have the subject blow the air through a cylinder containing glass wool or calcium chloride, then through two cylinders containing sulphuric acid, another containing glass wool, and then into the ionization chamber of either an alpha electroscope of the Lind type or, better, an electrometer of the Wulf type. The latter instrument has a silvered quartz thread, is of very small electrostatic capacity, and by the emanation methods can be read quantitatively to 0.001 microcurie.

Readings are then begun. The accompanying table gives the readings of a test made on one of the dial painters:

Demonstration of Emanation in Expiratory Air

Normal leak during test:	8.5 subdivisions in		50 minutes
	33.5 subdivisions in	1st	10 minutes
	16.2 subdivisions in	2nd	10 minutes
	15.7 subdivisions in	3rd	10 minutes
	16.6 subdivisions in	4th	10 minutes
	17.7 subdivisions in	5th	10 minutes
Leak during test:	99.7 subdivisions in		50 minutes

In this case there was a much greater leakage during the first and second ten minute periods than thereafter. This is due to the fact that the expired air contains a mixture of emanation originating from mesothorium with its decayed products and radium.

The chamber of the electrometer must then be deemanated. This is accomplished by passing air through it by means of a suction pump for a few hours. On account of small amounts of active deposit, the chamber becomes actually contaminated and should not be used for another test until about four days later.

The objection to this test for the examination of a considerable number of workmen is obvious, since it is cumbersome and time consuming.

Determination of Radioactivity by Means of Gamma Electroscope.—June 16, 1925, von Sochocky, Conlon and I used a gamma electrometer of the Wulf type to demonstrate penetrative gamma rays coming from the body of one of the girls. This is the first time as far as we know that this test was made on a human being. The instrument was placed 18 inches from the chest of the patient and 9 inches above the level of the bed. Readings showed a normal leak before the test, ten subdivisions an hour, and a total leak during the test of fourteen subdivisions an hour. The difference of four subdivisions an hour was probably caused by penetrative radiations coming from the body of the patient. The girl died a few days later. The increased leakage, however, was small, and was merely a suggestion of the presence of radioactive substances in the body. After autopsy in this case it was estimated that the skeleton contained 180 micrograms of radioactive substances, about 70 per cent being from mesothorium and its decay products.

On account of the superiority of the method of examining the expired air for the presence of emana-

39. Ewing, James: Radiation Osteitis, Acta Radiol. **6**: 399, 1926.
40. Seil, H. A.; Viol, C. H., and Gordon, M. A.: The Elimination of Soluble Radium Salts Taken Intravenously and per Os, Radium **5**: 42 (May) 1915.

tion, we discontinued using the method just described. In May, 1927, Flinn [22] resurrected it and stated that in one of his cases a gamma electroscope, when placed close to the body, showed gamma radiation which was estimated at about 100 micrograms in the entire body. After the administration of ammonium chloride for four days, this was reduced to 86 micrograms.

My attention was again called to this method when in May, 1928, I had the opportunity of seeing this test employed by Schlundt and Flinn in examining the five girls.

My opinion is that this test will not demonstrate the presence of radioactivity in most cases and that to conclude that the subject is not radioactive on the basis of negative observations of this character might do a great injustice. My reasons are as follows:

First, the amounts of radioactive substances found in these cases must be taken into account. In the fatal cases the first quantitative examination of the organs ever made on a human being was in the case reported by Reitter and me [19] in which Barker, the company's physicist, found 14 micrograms of radioactive element in the skeleton. In the next case I found 180 micrograms and soon after, in another case, 150 Gm. in the entire skeleton. In a body exhumed five years after death, Gettler found 48.282 micrograms in the entire skeleton. It will be seen, therefore, from the cases examined at autopsy that the so-called lethal dose, if such a dose exists, seems to range from 10 to 180 micrograms of radioactive substances (estimated as radium element) deposited in the bones. If it is now recalled that 95 per cent of the rays coming, for example, from 14 micrograms distributed over the entire skeleton are alpha rays, and that these are almost entirely absorbed by 1 mm. of body tissue, it stands to reason that none of these alpha rays will be present on the surface of the body. Then if it is assumed that the remaining 5 per cent are beta and gamma, the amount of penetrative radiation from 14 micrograms would be extremely small. Beta rays are absorbed by 1 cm. of body tissue, and 75 per cent of gamma rays will not pass through more than 10 cm. of tissue. It will be seen, therefore, that the amount of gamma rays leaving the surface of the body from such small amounts as 14 micrograms deposited in the bones will be so small as scarcely to affect a gamma electrometer, especially one in which the ionization chamber is constructed of brass and is from 2 to 3 mm. thick. It is quite impossible to roll the human body up into a small mass and place it directly in front of the instrument. Using the same position occupied by the girls while being tested by this method, I estimated that the middle of the tibia was 3½ feet away from the instrument, the middle of the femur, 2½ feet, and the top of the head, 1½ feet. In addition, these girls when tested probably had a much smaller amount of radioactive substances in their skeletons than did those who died earlier, as they seem to be wearing down the disease as a result of the natural decay of the mesothorium.

Demonstration of Radioactivity by Photographic Methods.—Whether radioactivity could be demonstrated by photographic methods during life in these cases is questionable, as the deposits are not large enough and the films would have to remain in place too long a time. However, in the earlier studies girls suffering from jaw necrosis held dental films in their mouths for several hours but photographic impressions were never obtained. Later it was found in photographic studies on material obtained at autopsy that such films had to lie against the bones for from five days to three weeks or more to show definite exposures. For these reasons it would seem that photography will never be of any value in the study of similar patients while they are alive.

DIAGNOSIS AFTER DEATH

Aside from the severe anemias with the characteristics described, the jaw necroses, the radiation osteitis in other bones with its resulting crippling deformities, and the remaining pathologic changes depend chiefly on the mode of death, the occurrence of buccal lesions and sepsis.

The main interest aside from the pathologic changes, therefore, is directed to the demonstration of radioactivity in the organs, particularly the bones, its character, the amount present, and the location.

Photographic Methods.—Photography is of the greatest usefulness in the demonstration of radioactivity in the bones of these patients, since the intensity of the photographs gives a quick, indisputable diagnosis of its presence, and often a rough estimate of the approximate amounts. Photographic methods are of the greatest importance scientifically, as they are the only means by which the exact anatomic location of the radioactive deposits in the bones or other organs can be determined. The pictures obtained are so definite that they leave little doubt. Of course, much depends on the speed of the plates or films used, the length of exposure, and the method of development. I have found by experience that, for the demonstration of radioactivity in the organs after death, the methods given here are the most practical.

After the bones have been cleaned, they may be boiled in water with a little sodium bicarbonate if necessary; they are rinsed and then dried in a hot air oven. They are now ready for demonstration of radioactivity by photographic methods.

First Method: Standard dental films in their original packets are strapped with adhesive plaster over the bones in the positions desired, with the film surface directed against the bone. Metal paper clips or pieces of leadfoil are interposed between the bone and the film surface of the packet. In this method the alpha rays, which form 95 per cent of the radiation in these cases, are screened by the paper of the packet, so that any photographic impressions obtained must be due to penetrative beta and gamma rays. They should be left on the bones for from two to three weeks, or longer, before being developed. The shortest time in which I obtained photographs by this method was seventeen days from the femur in one case and eighteen days from the mandible. If radioactivity is present, the films when developed are fogged and the shadows of the metal clips show as unexposed areas, rather sharply defined, but not as sharp in outline as when obtained by means of the roentgen ray on account of characteristic scattering of the beta rays. These pictures have been designated by me as shadowgrams. This method is a very safe one, since there is no necessity for exposing the original films until time for development. I have found from numerous control studies that nothing will produce photographic impression on these packets except radiation from radioactive substances or the roentgen ray.

Second Method: The bones should be very well cleaned and free from moisture or grease. They may be partly incinerated or the bone ash may be used after complete incineration. If the ash is used it is well to wait thirty days, as the incineration temporarily deemanates the bone.

In the dark room the bones are placed directly against and on the film surface of preferably an Eastman 5 by 7 superspeed or process film. I prefer the latter for contrast but it requires a longer exposure. In placing the bones in position the light must be a safe one, since a strong red light during the placing of the bone in position may cause a slight exposure which, on development, will show the outline of the bone when no radioactivity is present. This exposure, however, will be reversed in color and not easily confused with that due to radioactivity.

Because the preponderance of the rays from these deposits are alpha rays, photographic impressions will be obtained much more quickly than in the first method. I have obtained pictures in three days from the mandible, but usually from seven to ten days is required. If exposure is too long extensive fogging may take place, rendering the exact distribution of the deposits in the bones obscure. These pictures are characterized by irregular fogging of the plate or film, and often show definite alpha penciling. They show beautifully the distribution of the radioactive deposits in the bone, their irregularity and concentration, and the strong tendency to accumulate eventually in the outer portions of the compact bone.

By means of an ingenious technic used by Lacassagne [41] in his experimental work with polonium, I was able to obtain "autohistoradiographies" from paraffin blocks of the bones after histologic sections were cut. These demonstrated the uneven deposits of the radioactivity in the bone and a peculiar concentration in the femurs toward the outer part of the cortex. These pictures usually require from fifteen to twenty days or more exposure for the obtaining of photographic impressions. They may be compared accurately with the histologic slide cut from the same block.

I have made many normal control studies by these methods and have never obtained any photographic impression except from an accidental or careless leakage of light when radioactivity was absent.

It has been stated that photographic impressions may sometimes be obtained from coins and various other objects by placing them in contact with photographic plates or films for a long period of time. Besides the well known radioactive families uranium, thorium and actinium, the elements potassium and rubidium have been shown to possess the property of radioactivity. The last two elements have been shown to emit beta rays.[42]

The photographic impressions produced by these objects on plates or films are extremely faint at best and cannot compare with the ease and sharpness of the pictures obtained in these cases. Furthermore, when dental films are used as in the first method, most of these technical difficulties are readily eliminated.

As regards the measuring of radioactivity by photographic methods it is only fair to express the view of Rutherford,[43] who says:

> As a general method of study of the radiations, it [photographic method] is open to many objections. A day's exposure is generally required to produce an appreciable darkening of the sensitive film when exposed to a weak source of radiation like uranium and thorium. It cannot, in consequence, be employed to investigate the radiations of those active products which rapidly lose their activity. Moreover, it is shown that the darkening of a photographic plate can be produced by many agents which do not give out rays like those of the radioactive bodies. This darkening of the plate is produced under the most varied conditions and very special precautions are necessary when long exposures to a weak source of radiation are required. . . . The chief drawback of the photographic method lies in the difficulty of deducing the intensity of the radiation from measurements of the density of the photographic impression. In addition, the relative photographic effect of the different types of radiation is dependent on the thickness and rapidity of the films and plates employed. . . . In most cases, however, where thin films of radioactive matter are used, the photographic effect in a vacuum or close to the active film is mainly due to alpha rays.

Demonstration of Radioactivity by Means of Alpha Electroscope.—In the examination of the organs for radioactivity I usually proceeded in the following manner: The organs after removal at autopsy were chopped up by being passed through a food chopper and dried over a sand bath to a slight charring. They were then partly incinerated in the electric oven at low heat, most of the organic matter being driven off. Bones were sawed into small pieces and organic matter was burned off in the incinerator. The organs were then placed in bottles and sealed.

Separate specimens of the various organs to be tested which had been partly incinerated were then placed in a cardboard container and put in the lower compartment of an alpha electroscope of the Lind type. The various readings were then made, the normal leak always being taken before each test. The normal leak was usually considered the time it took the foil to go across the entire microscopic scale.

The following protocol illustrates one of these tests:

Liver.—Normal leak, two minutes and twenty seconds; test, two minutes.

Spleen.—Normal leak, two minutes and twenty-one seconds; test, twenty-six seconds.

Bone Cortex.—Normal leak, two minutes and eighteen seconds; test, one minute and twenty-one seconds.

Bone Marrow.—Normal leak, two minutes and eighteen seconds; test, one minute and fifteen seconds.

From this protocol it is seen that the bones contain by far the most radioactivity, the spleen a definite amount, and the liver a trace. After the test was made all the material, including the inferior maxilla and the two femurs, was then placed near the gamma electrometer and the following readings were made:

Normal leak, twenty-eight minutes; test, twenty-two minutes and forty-three seconds.

Quantitative Estimation of the Amounts of Radioactive Deposits by Chemical Extraction.—The following procedure was used in most of our quantitative work: After radioactivity was demonstrated in the bones by these methods—positive photographic impressions, readings with the alpha electroscope, and positive penetrative gamma radiation with the gamma electrometer—the bones were incinerated in an electric oven to a white ash with an excess of carbon. A paste of this ash was then made with barium chloride and hydrochloric acid. This paste was then boiled with hydrochloric acid and distilled water and filtered while hot through a hard paper. The precipitate on the paper was allowed to dry and was incinerated with the paper. The ash was tubed and sealed and its radioactivity was measured by gamma penetration thirty days later. This ash contained the radiothorium. The filtrate was treated with sulphuric acid and allowed to stand for a

41. Lacassagne, A.; Lattes, J., and Ladivan, J. L.: Etude expérimentale des effets biologiques du polonium introduit dans l'organisme, J. de radiol. & d'électrol. **9**: 1 (Jan.) 1925.

42. Campbell, N. R., and Wood, A.: Proc. Cambridge Phil. Soc. **14**: 15, 1907. Harkins, W. D., and Guy, W. G.: Proc. Nat. Acad. Sc. **11**: 268, 1925.

43. Rutherford, E.: Radioactive Substances and Their Radiations, Cambridge at the University Press, New York, G. P. Putnam's Sons, 1913, pp. 87-88.

precipitate. When this had formed, it was boiled and filtered while hot to hold the calcium sulphate in solution. The second precipitate on the filter paper was dried and incinerated and the ash tubed and measured thirty days later by the gamma electrometer for the amount of radium and mesothorium present. The final filtrate should not show any radioactivity if extraction has been complete. The tubes containing the incinerated precipitates were then measured after an interval of thirty days to permit them to return to equilibrium, the deposits having been deemanated by the incineration. The calculations were made by the gamma electrometer, the readings obtained being compared against known standards.

PROGNOSIS AND TREATMENT

As there is no specific treatment so far devised for this type of poisoning, the prognosis and tentative treatment may be discussed together. In 1925 we [1] stated that there was no form of treatment which would be specific on account of the great insolubility of the radioactive deposits in the bones. To have a specific treatment means that one must first be able to convert the deposits into some form of soluble salts, which can then be eliminated. We do not see any reasons at present for changing our original opinion. Incineration of the bones into a white ash will not decrease the deposits but only temporarily deemanate the bones. To extract the substances from the bones, boiling the ash with hydrochloric acid is necessary to convert the insoluble sulphate into a chloride. How is it possible, therefore, to conceive of any form of treatment that will affect such deposits?

Thinking that it might be possible to influence these deposits, Flinn [22] treated one of the Connecticut patients with large doses of ammonium chloride and reported that a diminution in the amounts in the skeleton could be detected by the gamma electroscope. This patient, however, died. Because of the amounts of the radium found by Gettler in his case, in the various organs, he thought that some must be in the circulation. Following the work of Aub, Minot and their co-workers on lead poisoning, he tried to produce an acidosis, but apparently had little results.

According to similar lines of reasoning, the production of an alkalosis might also be tried and even the feeding of parathyroid and calcium.

Another vague possibility of counteracting the effects of these deposits is by a method which Evans [44] is about to describe. He has found that it is possible, by the use of colloids, to protect the body tissues from the deleterious effects of an overdosage of x-rays, no matter how great the dose has been. This depends on the well known laws of colloids and their electrical charge. He has suggested that this form of treatment might be tried. It would seem, however, that this procedure is mainly theoretical at the present time.

For the reasons stated the treatment resolves itself, at present, to a purely symptomatic one: in the early cases, the care of the mouth, the prevention of sepsis, the treatment of anemias by liver diet, sunlight, high altitude to produce a polycythemia, and quartz lights, and, in the later cases, by general hygienic treatment and any special orthopedic treatment that is deemed necessary.

The most helpful thought to be offered to those afflicted and now alive is that a sufficient time has elapsed to allow the mesothorium, which probably predominates in most of these cases, to have passed its half period time, and, in some cases, even its full life, so that, through its uninfluenceable decay, the skeleton is becoming free and the constant bombardment of the alpha rays is diminishing or about stopped. This would seem to be the most rational explanation of the difference in the clinical pictures in the early and the later cases. If most of the deposits are due to mesothorium and its derivatives, which the chemical extraction in four of my cases has shown to be true, in 6.7 years after injection these should be reduced to one-half strength, and if the patients could survive a period of twelve years, most of it would be eliminated as a result of its natural decay. While such patients might continue to suffer from chronic, crippling bone lesions, the result of radiation osteitis, they might escape the fatal outcome of the anemias and the jaw necroses with the added sepsis. If, however, radium predominates, such a diminution of the deposits as a result of natural decay is out of the question, as the half period of radium is 1,750 years.

FUTURE PROPHYLAXIS IN THE WATCH DIAL INDUSTRY

The results of this investigation have shown conclusively that in the New Jersey cases the habit of pointing the brushes in the mouth was the main cause of disability. Of course, in the factory inspection of the plant, the Drinker report shows that the walls and ceilings of the rooms in which these girls worked were so contaminated with radioactive substances that other methods of entrance into the body were also possible.

Recently the U. S. Public Health Service was asked to make a national survey of the watch industry for similar types of poisoning along lines akin to their investigation of the tetra-ethyl lead situation. Such an investigation would be of great importance, no doubt, and it is possible that similar disastrous effects may be revealed. The great trouble with most investigations is that they always start after the harm has been done.

It would seem that, following the extensive notoriety given these cases in the press, any manufacturer who would allow a continuation of the practice of licking brushes, or who would not take steps to prevent contamination in other ways, would be a simpleton. Yet, who can tell? It is stated that Mme. Curie in an interview given the New York *Journal* said that she was surprised that the United States Government would permit the handling of such dangerous substances as radium and mesothorium in such a careless manner, and that the continual swallowing of such substances was criminal.

CRIMINALITY IN THE NEW JERSEY CASES

When I first ascertained in 1925 as medical examiner that deaths due to an occupational poisoning had occurred and were still happening, and when I could prove to my satisfaction the manner in which the poison entered the body, where it was deposited and its deleterious effects, the question arose as to criminality or responsibility.

In spite of the way in which this plant had treated its employees in continually refusing to admit that an occupational poisoning existed or to assume any responsibility, allowing any number of girls to spend their entire savings and in many instances the savings of their families and relatives in extensive dental and medical bills, I have always been of the opinion that the company did not intentionally intend to harm its

44. Evans, Archibald: Personal communication to the author.

employees. By the time I had uncovered the first cases, the habit of pointing the brushes in the mouth had been stopped. In fact, most of the dial painting had dwindled down, so that the company was chiefly concerned in the manufacture of the luminous paint and its sale to the watch industry.

There was therefore no reason to close the factory, and because I believed that there was no intentional criminality I never saw fit to report these cases to the prosecutor (district attorney) of the county in which they occurred. I did, however, send an official report to the state department of labor, feeling that these patients should properly be under compensation, and that the inspection of such plants was under their supervision. Attention was also called to the state compensation law and to the fact that such cases were not included under the present law.

The sad and unfortunate part of these cases is that the compensation law of New Jersey covering occupational diseases is so inelastic as to limit compensation to those diseases which are only specifically mentioned in the law.

At the present time, only the following ten occupational diseases are compensable in New Jersey:

1. Anthrax.
2. Lead poisoning.
3. Mercury poisoning.
4. Arsenic poisoning.
5. Phosphorus poisoning.
6. Poisoning from benzene and its homologues, and all derivatives thereof.
7. Wood alcohol poisoning.
8. Chrome poisoning.
9. Caisson disease.
10. Mesothorium or radium necrosis.

The tenth disease, radium-mesothorium necrosis, was added in 1927, chiefly because of newspaper publicity over these cases. It is worthy of note that in the drawing up of the laws, the exact wording is usually coined by members of the legal profession based on information given them by some civic or lay body. It is unusual for them to consult those who are acquainted with the real facts. For this reason many of the laws are vague in meaning, often quite incomprehensible, full of loopholes, and in some cases containing jokers. To benefit under the compensation law in this state in regard to poisoning by the ingestion of radioactive substances, one must have radium-mesothorium necrosis. It can easily be seen from the description given here that many patients may die without ever having shown any jaw necrosis during life. Hence they are not covered by the present compensation law.

It was stated by Sir Thomas Oliver on his recent visit to this country that in northern New Jersey there was a larger number and variety of industries in which occupational poisoning could exist than in perhaps any other known geographic area in the world. In this location new industries are constantly appearing in which new chemical, physical and other hazards are becoming apparent. It is most important, therefore, that the compensation laws of the state should be so elastic as to include at any time new and hitherto undescribed forms of occupational poisoning. This should be comparatively simple. The state department of labor, for instance, could have at its disposal eminent consultants in occupational diseases, physicians, pathologists, chemists and physicists, who could be called on if a new disease appeared to give their unbiased opinion as to whether or not an occupational poisoning existed. If in their opinion it did exist, proper compensation should be given without the disgraceful wrangling of the hired medicolegal prostitutes and so-called experts that prey on the courts.

This, in my opinion, would perhaps be better than the so-called blanket compensation law that exists at present in five states. I am informed that such a law covering occupational diseases opens the road for political pull and graft, in which many common diseases, such as the ordinary garden variety of pulmonary tuberculosis, and malignant conditions are attributed to insignificant or slight injuries sustained while at work.

It is to be noted that while the compensation laws of New Jersey are being criticized, the same thing can be said, even more strongly, about other states. It is a well known fact that conditions in New Jersey are far superior to those in some other states. In some states there are no compensation laws covering occupational diseases.

It is only fair to the employees and the employer that such compensation laws should be formulated. In the cases cited here it is an unfortunate and sad situation that more than fifteen deaths occurred, in only two of which did the families receive any financial aid; and that some fifty girls have spent almost their entire earnings for years on dental bills and sickness. It is unfortunate that because of the lack of protection by compensation, the plant had continually to ignore responsibility and to fight every step in the courts to prevent financial ruin. This is not a fair deal for either side.

All these cases should properly have come under the compensation law. This would have saved the company an enormous amount of worry, loss of business due to publicity, and the possibility of impending financial ruin. If this disease had been properly covered by law, the victims would have been saved from the ignominy of becoming objects of charity. A competent body of medical authorities after the evidence was submitted could have disposed of the case in a day's time without the utter ridiculousness of dragging a simple case along for years in the courts. The only advantage out of this terrible mess has been, as usual, to the legal profession.

180 Clinton Avenue.

Abdominal Pain and the Urinary Tract.—In reviewing a series of cases of calculi in the urinary tract Braasch remarks that the typical symptoms are absent in about half the cases. The location of the pain is often in the anterior lower or middle part of the abdomen. Almost one third of the patients with stone in the right kidney had the gallbladder or the appendix or both removed without relief. He points out, therefore, the importance of studying the upper urinary tract in all cases of abdominal pain when it is not typical of a specific intra-abdominal lesion. We might say that of other conditions of the urinary tract as well. It should be remembered that, although the kidney and ureter are extraperitoneal, the relationship between them and the intraperitoneal organs is very intimate; and it is not uncommon to have a hydronephrosis which is not large enough to be palpable and which does not give the usual picture cause a train of gastro-intestinal symptoms which would lead us to suspect some serious trouble with the latter. As a corollary, therefore, we might say that every case with gastro-intestinal disturbance the cause of which is not clearly evident should have the urinary tract investigated. Not until we are thoroughly aware that these cases can and do exist will they be kept out of the classification of the neuroses.—Sparks, A. J.: The Relative Value of Symptomatology in Diagnosis of Diseases of the Urinary Tract, *J. Indiana M. A.*, December, 1928.

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SATURDAY, FEBRUARY 16, 1929

DEATHS OF PHYSICIANS

THE JOURNAL published during the year 1928 the obituaries of 2,792 physicians of the United States, including eight who resided in China, Syria, Switzerland and Mexico; in addition, there were 111 Canadian obituaries, making the total number published 2,903. There were seventy-six women in the group and thirty-five negroes. The graduates of medical schools of the United States for the fiscal year ended June 30, 1928, numbered 4,262; deducting the 2,792 physicians whose obituaries were published leaves for the year approximately a net increase in the ranks of the profession of 1,470.

Ages.—The average age at time of death of those classified as of the United States was 63.1 years, a gain of about one year over the group published in 1927. This probably does not indicate a permanent gain in the life span of one year. The 1926 group averaged 62.8 years. The average age was 60.3 years in 1905, 60.4 in 1910 and 1915, and 61 years in 1920. There was not one centenarian in the entire 1928 group; however, 118 physicians lived to be 85 or more; in the age period 80-84, 173 died; 75-79, 285; 70-74, 393; 65-69, 362; 60-64, 374; 55-59, 384; 50-54, 279; 45-49, 168; 40-44, 100; 35-39, 74; 30-34, 47; and 28 died before they were 30 years of age. It is interesting to note that 6.5 per cent of the decedents in Massachusetts lived 85 or more years; 4.7 per cent in New York; 4.5 per cent in Michigan; 4 per cent in Indiana; 3.4 per cent in Pennsylvania; 3.3 per cent in Illinois, and 3.2 per cent in Ohio. Last year Indiana led this list with a percentage of 7.2, followed by California with 5.2, Illinois 4.7 and Ohio 3. March, which has long held first place as the month in which most deaths occurred, gave way to May, which had 279 deaths, followed by January with 276 and March with 269.

Accidental Deaths.—There were 135 physicians who died as the result of accidents, as compared with 140 in the previous year. The automobile increased its toll by three, making it sixty-nine; falls with twenty-four again were the second largest cause of accidental deaths, an increase of four; trains were partly responsible for fifteen, drowning six, burns, "pin pricks and scratches" and carbon monoxide each four; gunshot wounds, the airplane and overdose of medicine each three; street cars and roentgen-ray machines each two, and the following each one: skating; bone inhaled in food, causing lung abscess; collision of buggy with automobile; electricity; suffocation following a fall on a gas stove; and sliver of steel in finger.

Suicides and Homicide.—There was a decrease in suicides reported from forty-nine in 1927 to forty-seven in 1928. As usual, the method most frequently used was firearms, in twenty cases. Poison was used in six cases; incision of blood vessels in four; hanging in three; gas, drugs and anesthesia each in two; jumping in one, and in the remaining cases the method was not reported.

Causes of Death.—For the 2,792 deaths there was tabulated, in accordance with the charts used, 3,204 causes. Some contributory causes were included. A report giving the cause as cerebral hemorrhage and arteriosclerosis, for example, was tabulated under both diseases to indicate, in this case, to what the cerebral hemorrhage was due. The most common cause of death was heart disease, as it was in the preceding year. Among the 884 reports of heart disease, 132 specified angina pectoris, 225 myocarditis or endocarditis, and two pericarditis. Cerebral hemorrhage was the second most frequent cause with 328 deaths, 15.2 per cent of which occurred before the physicians were 55 years of age. Paralysis was reported in forty-six other cases, and 13.1 per cent of these deaths occurred before 55 years of age. Seven of the paralysis deaths were due to paralysis agitans and one to paralysis of the throat. Pneumonia, the third most frequent cause, was reported in 272 cases, with bronchopneumonia specified in sixty-five. Thus far the order is the same as in the preceding year, but in fourth place now is nephritis, which displaced cancer by one death. Nephritis was reported in 249 cases, with twenty-three specified as acute. Cancer, with 248 deaths, holds fifth place, as it did in the 1926 group. Cancer, however, caused more deaths in fifth place in the 1928 group than it did in fourth place in the 1927 group, the increase being twenty. There were in all twenty sarcomas included among the 248 cancers. Cancer of the stomach and liver accounted for seventy-five deaths; cancer of the intestine, thirty-six; of the buccal cavity (which here includes the throat also), twenty-two; of the prostate, twenty; of the female genital organs, four; of the skin, one, and in ninety cancer cases the organ affected was not specified. Thirty-three per cent of the cancer deaths occurred after the physicians were 70 years of age, and that percentage was just the same in the preceding year. Arteriosclerosis holds sixth place with 167 deaths, whereas it was in seventh place in the preceding year.

Accidents are in seventh place. Tuberculosis is eighth on the list, with ninety-one deaths, of which fifty-eight were pulmonary. While embolism and thrombosis is ninth, where it was in the preceding year, deaths due to that cause increased to seventy from fifty-seven. Thirty-one of these were coronary. This is especially interesting in view of the many abstracts published in the foreign literature department of THE JOURNAL last year indicating that embolism and thrombosis are on the increase in other countries. Uremia holds tenth place, with sixty deaths. Diabetes is eleventh, with fifty-two; 36 per cent of the deaths from diabetes occurred after 70 years of age. Suicide is in twelfth place with forty-seven, and influenza in thirteenth place with forty-four deaths.

Diseases of the prostate reported as other than cancer caused thirty-eight, and "other diseases of the digestive system" thirty-two deaths. Cirrhosis of the liver caused twenty-nine deaths, as against twenty-one in 1927 and twelve in 1926; appendicitis twenty-six, cholecystitis nineteen, peritonitis fourteen, gallstones thirteen.

Septicemia caused twenty deaths, ulcer of the stomach or duodenum fifteen, pernicious anemia fourteen, meningitis thirteen, leukemia eight, diseases of the spinal cord eight, diseases of organs of hearing seven, encephalitis six, alcoholism five, asthma four, paresis three, pellagra three, diphtheria three, goiter three, and hernia, aneurysm and typhoid each two.

Causes each of which accounted for one death were: endarteritis obliterans, strangulated hemorrhoids, agranulocytic angina, Ludwig's angina, Vincent's angina, amebic dysentery with liver abscess, bacillary dysentery, purpura hemorrhagica, chorea, polycythemia, local anesthesia, food poisoning, septic splenitis, splenic anemia, hypertension, sinusitis, scarlet fever, sporotrichosis, puerperal sepsis, tularemia, infantile paralysis, diabetes insipidus, Addison's disease, and tumor of the mediastinum.

Civil and Military Positions.—There were 203 decedents who served in the World War; eighty-eight were Civil War veterans, and thirty Spanish-American War veterans. Those who had been teachers in medical schools numbered 165. There were eighty-four who had been health officers, fifty-nine members of boards of education, forty-eight members of boards of health, thirty-nine coroners, thirty-five druggists, thirty-two members of state legislatures, twenty-eight mayors, twenty-one members of boards of medical examiners, twenty authors, fifteen bank presidents, fourteen members of the U. S. Army medical corps, ten members of the U. S. Navy medical corps, eight members of city councils, five editors, five regents of universities, four postmasters, four missionaries, and one lawyer.

Association Officers.—Two past presidents of the American Medical Association were reported dead during 1928, two trustees, one vice president, thirteen who had been members of the House of Delegates, ten section officers and two members of councils. There were also eighteen former presidents of state medical societies.

THE PINEAL BODY

The little organ known as the pineal body has attracted medical attention since the earliest times. Apparently, Descartes considered it as having some important relationship to the activity of the soul. The endocrinologists, realizing the apparent absence of exact knowledge regarding the functions of this tissue, have permitted themselves to revel in the realm of fancy, so that the fairy tales of Andersen and of the brothers Grimm seem as accurate as columns of statistics, when compared with modern endocrinologic notions. Recently, Jelliffe [1] reviewed the literature from 1921 to 1927 relative to the pineal body. Apparently, more than 100 periodical contributions appeared during this time, as well as numerous references to the pineal body in books and in systems of medicine.

Direct connection of the pineal body with the nervous system has been established, as well as with the blood vessels of the choroid plexus. The fundamental studies of Horrax and Bailey have demonstrated the nature of the cells, which seem to be specific in character. Volkmann believes he has determined the incretory nature of the pineal body, and the studies that have been made of the physiology of the pineal body seem to establish its relationship to the glands of internal secretion, particularly those having to do with sexual characters. Nevertheless, such authorities as Bauer consider all the evidence conflicting and believe that neuroregulatory rather than hormonal influences are involved in such conditions as the pubertas praecox syndrome in epidemic encephalitis. Clinical studies of this unusual tissue in man are almost as inconclusive as those made on lower animals. Walter has contended that the pineal body is important as a possible regulating factor in the whole process of vascular distribution to the brain cells. He rather doubts that there is an internal secretion but believes also that the effects are neuroregulatory.

The studies of tumors cannot be directly applied to the normal physiology of this tissue. Marburg and others summarize the views by the statement that we can admit certainly that the organ has a function in man and in mammals, and that possibly this function is an internal secretion which is not indispensable to life. However, they insist, contrary to the writings of such American investigators as Berkley, Timme, Hoskins and Goodhart, that the hypothesis that this secretion is of importance in the development of puberty is to date completely without significant evidence. Jelliffe's review of the literature concerning the pineal body indicates that our knowledge is fragmentary and that progress in the future may depend

1. Jelliffe, S. E.: The Pineal Body, Review of the Literature, 1921-1927, Nelson Loose Leaf Living Medicine, 1928, p. 1052.

on systematization, correlation and the direction of research toward certain definite ends. Moreover, the preponderance of the evidence indicates to him absence of an internal secretion and an actual neuroregulatory function.

VITAMIN B—ITS NATURE AND ITS WORKS

Although it has been more than twenty years since Professor Pekelharing, noted Dutch investigator, hazarded the opinion that "there is a still unknown substance in milk, which, even in very small quantities, is of paramount importance to nourishment," the isolation of vitamins in pure form remains an unsolved problem for the research worker in the laboratory. As long ago as 1887 a commission from the Netherlands was studying beriberi, and, indeed, since that time the search for the elusive essential substance has been constant. In a recent survey of the biochemical investigations of vitamin B, Kruse and McCollum [1] of the biochemical laboratory of Johns Hopkins University have traced the gradual development of interest in the nature of this vitamin. The demonstration of the existence of the vitamin was not accepted without a struggle. It was not until 1920 that Abderhalden agreed that there was no longer doubt of the existence of a series of nutritive elements which participate in metabolism and influence organic functions specifically. The credit for the term "vitamines" goes to Funk, who in 1911 separated a potent extract from rice polishings. Almost simultaneously, numerous other investigators isolated the antineuritic substances in relatively concentrated forms, and several additional terms, such as "oryzanin," "torulin" and "antiberiberin," were suggested; but the term coined by Funk has been able to capture both medical and popular fancy notwithstanding the fact that the substances are not "amines." The suggestion by Drummond that the final "e" be dropped solved the difficulty of confusion with chemical nomenclature.

Since 1911 investigations on vitamin B have been extended, so that it is apparent now that it is concerned with many other conditions besides beriberi. It has been associated, as almost every one knows, with such qualities as are attached to yeast. It has been shown to have certain growth promoting qualities, and Goldberger, as has been pointed out in previous editorials in THE JOURNAL, concluded that a fraction of the vitamin B complex was definitely concerned with the prevention of pellagra. At this time vitamin B nomenclature is seriously confused in biochemical writings, so that the reader cannot always be clear as to the specific fraction that is concerned in any given discussion. Kruse and McCollum suggest that the designation vitamin B apply to that part characterized by antineuritic properties, and vitamin F to the portion described by Goldberger as antipellagrous.

Recent investigations of the vitamins indicate more and more that it is not possible to generalize from single observations on any one of them what its nature or effects will be under other conditions. For instance, the fact that a vitamin exists in certain quantities and with certain potency in a raw vegetable is no guarantee that the vitamin will be found in the same quantity and potency in the juice of the vegetable, in the canned, strained, cooked or otherwise artificially handled substance. The antineuritic properties of vitamin B are destroyed by a temperature of from 115 to 120 C. for one to two hours, but deterioration at lower temperatures is much slower. The heating at the temperature and for the length of time ordinarily employed in cooking produces apparently only an insignificant destruction of this vitamin. It is remarkably resistant to acid but extremely sensitive to the alkaline reaction, particularly in the presence of heat. Exposure to ultraviolet rays does not seem to harm the vitamin greatly, nor does storage injure it, since samples of Indian lentils and seeds which had been kept for thirty-eight years were found still to contain appreciable quantities of vitamin B. One investigator reported that rice stored as paddy for 100 years had lost little or none of its antineuritic vitamin.

As has been mentioned, attempts to obtain vitamin B in pure form have thus far been unavailing. The records of this research occupy many pages in the Kruse and McCollum report, the problem being complicated naturally by the fact that several factors are involved in the vitamin B complex. No one knows today how many important substances are included in what has heretofore been considered one vitamin, but the data already assembled provide innumerable problems for the attention of investigators in the future.

Current Comment

NARCOTIC ADDICTION

Although isolated studies on the problem of narcotic addiction have been made from time to time, a comprehensive investigation of its aspects, biologic, medical, social, economic and legal, has not been consistently pursued until recently. The Committee on Drug Addiction in affiliation with the Bureau of Social Hygiene, Inc., of New York has been engaged since 1921 in a special study of this important problem. An extensive compilation of facts known and of views held with respect to opium addiction has been made by Terry and Pellens and published by the committee in book form.[1] Recognizing the urgent need for further investigation of the various phases of the problem by careful scientific method, the committee has subsidized a number of field studies, investigations in several university laboratories, and a clinical study of the addict in the wards of the Philadelphia General Hospital. The

1. Kruse, H. D., and McCollum, E. V.: Biochemical Investigation of Vitamin B, Physiol. Rev. 9: 126 (Jan.) 1929.

1. Terry, C. E., and Pellens, Mildred: The Opium Problem, The Committee on Drug Addictions in collaboration with the Bureau of Social Hygiene, Inc., New York, 1928.

purpose of the clinical study, as thus far carried out, has been twofold. Its first aim has been to learn whether objective investigations would reveal any changes that can be measured by physical, chemical or physiologic methods in the addict that would differentiate him from the normal person, would serve to identify the state of opium addiction, and would provide indications to guide in his rehabilitation. Its second aim has been to study by similar methods the addict during the period immediately after withdrawal of the drug, at a time when he is suffering from "withdrawal symptoms." The first of a series of papers by Light and Torrance [2] dealing with the results of this study has recently been published. They deal with the addict while still receiving the drug. All recognized physical and chemical methods of clinical examination were employed in efforts to discover divergences in morphine addicts from those standards which are regarded as normal. The chief observations were that while the addict was receiving morphine in such amounts as to prevent withdrawal symptoms, or even in much greater quantities, there was determined no recognizable difference in any of the studies from the conditions in normal persons except slightly lower hemoglobin and red blood cell counts, a tendency to rather wide variations in white blood cell counts, and slightly higher figures for cholesterol and lactic acid in the blood serum. The report of further studies will be awaited with interest. The study shows that morphine addiction is not characterized by physical deterioration or impairment of physical fitness aside from the addiction per se. It offers substantial ground for the encouraging belief that, when it will be possible to relieve the addict of his addiction, complete rehabilitation may be expected. At the same time it emphasizes the imperative need for further scientific research as to the factors that initiate and maintain the state of addiction and as to methods for their control.

2. Light, A. B., and Torrance, E. G.: Clinical Studies on Opium Addiction: I. The Conduct of the Addict in Relation to Investigative Study, Arch. Int. Med. **43**: 206 (Feb.) 1929; II. Physical Characteristics and Physical Fitness of Addicts During Morphine Administration; III. The Circulation and Respiration of Human Addicts During the Administration of Morphine; IV. Blood of the Human Addict During the Administration of Morphine, to be published.

THE POSSIBILITY OF INFECTION FROM BACILLUS BOTULINUS

Botulism is generally regarded as a true intoxication. The various types of *B. botulinus* produce toxins that are specific for the type and can be neutralized by their homologous antitoxin. The poison is produced in understerilized preserved foods and, perhaps, in overripe or spoiled foods of a suitable chemical reaction. At present the reference to preserved food would apply for the most part to home canned nonacid products. Public health officials have urged, because of the unsafe temperatures recommended for home canning, that such foods be thoroughly boiled before being consumed. Unfortunately, the careful and saving housewife may boil the spoiled or borderline, heavily contaminated material and, though the spores may be detoxified, it is inconceivable that they would be destroyed at boiling temperature. Therefore, the problem of infection from spores is directly connected with the question of the germination of the spore of *B. botulinus* with its accompanying production of toxin in the animal body. Likewise, what clinical or laboratory criteria can be accepted as evidence of infection? As to the first hypothesis propounded, Coleman and Meyer [1] in 1922 proved that in laboratory animals there was obtained direct evidence of the germination of spores of *B. botulinus* in the closed jugular vein and the anterior chamber of the eye. Later, Coleman [2] demonstrated that heated spores suspended in salt solution would germinate and form toxin in collodion sacs placed in the abdomen. Now this author [3] has reported additional experimental evidence. By using formaldehyde as a tissue debilitant, approximately twenty-five spores inoculated intramuscularly were enabled to grow and produce poison. Previously, Geiger [4] had reported that the botulinus toxin could be absorbed from fresh wounds and mucous surfaces and that symptoms and death from botulism occur following such inoculations. The experimental evidence appears to be conclusive as to the germination of the spore in the animal body. That so small a number of spores plus formaldehyde will produce toxin when inoculated intramuscularly is decidedly interesting. Human botulism, however, from spore-contaminated wounds or an abnormal or injured digestive tract has never been reported. Nevertheless public health officials, from the available information, can insist that spoiled and possibly botulinus-contaminated food should be destroyed and not consumed, even if boiled. That some previously recorded human cases might have been an infection as well as an intoxication was suggested by some clinical laboratory data (agglutination reactions) obtained by Geiger [5] from patients in two outbreaks. The experimental data as to infection from the spore of *B. botulinus*, a widely distributed soil organism, deserve more than passing notice from epidemiologists notwithstanding that the preponderance of evidence collected so far is that human cases of botulism are caused by consuming food in which the toxin has been preformed.

1. Coleman, G. E., and Meyer, K. F.: J. Infect. Dis. **31**: 644 (Dec.) 1922.
2. Coleman, G. E.: J. Infect. Dis. **33**: 384 (Nov.) 1923.
3. Coleman, G. E.: Am. J. Hyg. **14**: 47 (Jan.) 1929.
4. Geiger, J. C.: Am. J. Pub. Health **14**: 309 (April) 1924.
5. Geiger, J. C., cited by Meyer in Kolle and Wassermann's Handbuch der pathogenen Mikroorganismen. **4**, part 20, 1928, p. 1321.

Problems of Medical Education.—To my mind the routine problems of medical education—the various questions involved in the endeavor to give the future practitioners the most adequate scientific training within a reasonable period of time—belong strictly to the teachers themselves, and we as practitioners are not so greatly involved in this solution, though we have our part, and an important one, to play, all those of us who have hospital connections, in making the final teaching of the intern years as complete and valuable as we can. A more vital concern for us who respect and love our profession is to see that its dignity and prestige are maintained in the face of the rising tide of commercialism. If I were obliged to make suggestions as to what is particularly needed in medical education, I think I should say that, under present day conditions it would better begin by a careful selection of candidates from the standpoint of character as well as from that of early education and mental capacity. In saying this, I am not implying that the character of the average medical student is low, but thinking of the probability that the tendency toward a lowering of professional standards is likely to increase.—Cooley, T. B.: Our Changing Profession, *Ann. Int. Med.*, January, 1929.

Association News

THIRD ANNUAL CONFERENCE ON PUBLIC HEALTH

The Third Annual Conference on Public Health will be held at the headquarters building of the American Medical Association, 535 North Dearborn Street, March 29 and 30.

The United States Public Health Service and other governmental agencies dealing with public health matters, the state departments of health of all the states, and all voluntary organizations actively interested in public health have been invited to send delegates to this conference. Any members of the American Medical Association who may be interested will be welcome.

The program for the conference has been arranged by a committee appointed by the President of the American Medical Association in accordance with a suggestion offered by the members of the last conference, which was held in March, 1928. The program of the first day will be devoted to a discussion of the opportunities for cooperative effort in the public health field. On the second day, there will be two papers of a more or less technical nature dealing with topics of general interest.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of February 18 to 24 will be as follows:

February 18. "What You Should Know About Cosmetics," by Dr. R. G. Leland.
February 19. "Hints for the Consumptive," by Dr. John M. Dodson.
February 20. "The Evolution of Quackery," by Dr. Morris Fishbein.
February 21. "Medical News," by Dr. J. F. Hammond.
February 22. "Hazards of Electrical Shock in the Home," by Mr. H. J. Holmquest.
February 23. "The Cause, Spread and Prevention of Tuberculosis," by Dr. R. G. Leland.

Evening Health Hints from Hygeia at 8 o'Clock, Central Standard Time

February 18. What to Do for Chilblains and Frost-Bite.
February 19. More Caution About Carbon Monoxide.
February 20. Heredity and Obesity.
February 21. Skin Disease Quackery.
February 22. Importance of Minerals in Nutrition.
February 23. Automobile—The Greatest Menace to Child Life.

THE PORTLAND SESSION

Side Trips Being Considered by the Local Committee of Arrangements

The Local Committee of Arrangements at Portland is considering the advisability of arranging side trips from Portland for those who may be interested in mountain climbing and in visits to the primeval forests of the great Northwest and to many places of scenic beauty that are more or less easily approachable from Portland. If a sufficiently large party can be organized, it is proposed that arrangements shall be made for a climb up the sheer sides of beautiful Mount Hood. Another trip that has been suggested is to Crater Lake by horseback, down the Skyline Trail, which follows the crest of the Cascades for 250 miles through unbroken forests and gives opportunity for viewing some of the most striking scenic beauties. Shorter trips limited to a single day are also being considered, among them one around Mount Hood, one to Eagle Creek with a climb to the Devil's Punch Bowl, and a climb along Perdition Trail to Multnomah Falls.

All those interested in these trips should write at the earliest possible time to Dr. E. A. Sommer, Chairman of the Local Committee of Arrangements, Electric Building, Portland, Ore.

Golfers' Special to Portland

Several special trips are being planned for the Portland Session of the American Medical Association, July 8-12. One of the trips contemplated is by way of the Southern Pacific System, involving traveling each night and golf each day *en route* at Omaha, Denver, Salt Lake City, Tahoe, Delmonte, San Francisco and Medford.

Another trip contemplated is by way of the Union Pacific, leaving Chicago on Monday, July 1, and planning for stops to play golf at Omaha, Denver, Salt Lake City, Boise and the Dells. The complete cost of meals, tips, golf fees, caddies and taxis on the latter trip is $201.30 per person in a drawing room, or $176.93 for a lower berth. To this the sum of $90.30 to cover the round trip fare should be added.

Persons especially interested in either one of these trips may send their request to the headquarters office of the American Medical Association, marking the letter WCB. It will then be referred to the railroad having the matter in charge.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bills Introduced.—Senate bill 30 appropriates $100,000 for the erection of the Arizona Children's Colony for the care and education of mentally defective children. Senate bill 34 provides for the sexual sterilization of inmates of the state hospital for the insane. House bill 11 would vest the supervision and control of all plumbing in the state board of health. House bill 18 provides for the appointment of a registered pharmacist at the state asylum for the insane at Phoenix. House bill 24 would amend the law prescribing the qualifications of a registered pharmacist by defining assistant registered pharmacists as persons not less than 18 years of age who have had not less than two years of instruction and experience in a pharmacy under a registered pharmacist.

CALIFORNIA

The Cost of Dental Care.—The University of California has made a survey of dental clinics in the state which shows that Los Angeles and Alameda counties have the most extensive dental organizations for offering free dental service to needy people. Twenty-seven of the fifty-eight county school superintendents reported that dental service is maintained in the schools. The California survey of dental clinics is being followed by similar surveys in other states. The data thus gathered will be, it is said, the first step in an investigation of the cost of dental care in the United States.

Bills Introduced.—Senate bill 337 requires the director of institutions to adopt rules and regulations for the government of the state narcotic hospital. Senate bill 478 authorizes the state department of agriculture to make rules and regulations to control the spread of rabies. House bill 488 provides for a medical library to be a unit of the state library in the state capitol. Senate bill 395 would compel all hospitals to render first aid treatment to persons injured in accidents occurring on the public highways. Senate bill 410 creates the office of Chief of Narcotic Law Enforcement, who shall have charge of the enforcement of all laws regulating the sale and distribution of narcotics and other dangerous drugs.

Foot and Mouth Disease Reappears.—The outbreak of foot and mouth disease, which occurred near Whittier in Los Angeles County, January 18, and was thought to have been suppressed, reappeared among cattle about 8 miles away near Downey. The situation appears favorable, as only one case was found in the two weeks of search over an area of nearly 100 square miles of surrounding territory. The U. S. Department of Agriculture, after long experience with this malady, considers it necessary to take drastic means, and to keep under close observation all herds within a certain radius. The 10 acres of ground and buildings where the first outbreak occurred were still being disinfected at the time of this report, January 31. The movement of motor trucks for handling live stock in this locality was under supervision, as was the union stockyards

of Los Angeles, where commission men voluntarily agreed to make no shipments of feeder stock from the yards. A later report from the U. S. Department of Agriculture, dated February 7, stated that the outbreak had affected a total of four herds since first discovered, January 18; one near Whittier, two near Downey, 8 miles away, and one about 6 miles south of Downey. The last one was traced to a calf buyer who visited the premises. The chief of the bureau of animal industry, J. R. Mohler, D.V.M., said that during the serious outbreak in 1924, calf buyers were often the means of spreading the infection. When quarantine interfered with their visits to farms in a certain area, they would go elsewhere, carrying infection picked up by contact with a herd in the early stages of the disease before the symptoms were visible. The first three infected herds in the present outbreak had been slaughtered and buried, February 6, and the same procedure was being followed in the fourth which, however, is only about 2 miles from a highly developed dairy district.

COLORADO

Bills Introduced.—House bill 43 would assess an annual license fee of $5 against medical practitioners. House bill 420 provides that a physician or surgeon shall not, without the consent of his patient, testify in court to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient. The following bills have passed the house: House bill 35, amending the present act for the registration of pharmacists by requiring of the applicant three years in a college of pharmacy and two years of practical experience; House bill 36, requiring a licensed pharmacist in each drug store; House bill 37, allowing certain persons, in towns under 500 not having a licensed pharmacist, to sell drugs, medicines, and poisons compounded by a licensed pharmacist.

IDAHO

Bills Introduced.—House bill 26 provides that all applicants for a license to practice any form of the healing art shall furnish the department of law enforcement a certificate showing graduation from an accredited high school. After July 1, 1934, applicants must have had two years of university work before entering the professional school. House bill 30 prohibits the use in any advertisement of the title of doctor or professor, or on signs of any abbreviations thereof, leading to the impression that the advertiser is engaged in the healing art, when he is not duly licensed to practice the healing art. House bill 36 amends the law relating to quarantine by providing that the local health officer may remove contacts from quarantine within shorter periods than specified in the law, if they have been properly immunized and there is no further danger of spreading the disease.

ILLINOIS

Bills Introduced.—House bill 69 provides for the asexualization of inmates of state institutions for the insane, feebleminded or mentally defective. House bill 99 appropriates $75,000 for hospital facilities for ex-service men at Jacksonville.

State Health Commissioner Resigns.—Dr. Isaac D. Rawlings, director of the state department of public health since 1921, resigned, February 11, to accept an executive position in the Chicago Health Department. Dr. Rawlings was for years a member of the Chicago health department and from there went to Springfield as state health commissioner.

Society News.—The Rock Island County Medical Society, Rock Island, was addressed, February 12, by Drs. David J. Davis and Nelson M. Percy, Chicago, on goiter.——The Jackson County Medical Society, Carbondale, was addressed, December 20, by Drs. Lionel Sinclair Luton and Flavius G. Pernoud, St. Louis, on diseases of the heart, and carcinoma of the breast, respectively.——The Adams County Medical Society opened its new library and club room at 510 Maine Street, Quincy, February 8; the society was addressed, February 11, by Drs. Don W. Deal and Samuel E. Munson, Springfield, on "The Acute Abdomen" and "Hypertension," respectively. Dr. J. W. E. Bitter, Quincy, has been elected president for 1929.——Dr. Edward F. Cox has resigned as health officer of Oglesby after many years' service.——The Vermilion County Medical Society, Danville, was addressed, January 8, by Dr. Dallas B. Phemister, Chicago, on "New Aspects of Bone Infection." Nearly 400 invitations to physicians in surrounding cities were issued for this meeting.——The St. Clair County Medical Society was addressed, February 7, by Dr. John R. Caulk, professor of clinical genitourinary surgery, Washington University School of Medicine, St. Louis, on "Painless Hematuria."——Carlos I. Reed, Ph.D., assistant professor of physiology, University of Illinois College of Medicine, has been given a grant of $300 by the Phi Rho Sigma fraternity to aid in a study on the physiologic effects of light.

Chicago

Gifts of $500,000 to University Clinics.—The University of Chicago announced, February 4, gifts totaling $500,000 toward the support of its medical clinics to be made over a five-year period beginning July 1. Messrs. Albert D. Lasker and Max Epstein each pledged $125,000, and the Julius Rosenwald Fund $250,000, the latter on condition that the university obtain pledges for a like amount from local sources. The University of Chicago Clinics, opened in October, 1927, are soon to be enlarged by the addition of the new Bobs Roberts Memorial Hospital for Children, a new hospital for crippled children, and the new Chicago Lying-In Hospital, which will make the total capacity 500 beds. It was announced also that Dr. Franklin C. McLean, professor of medicine, has been appointed director of the university clinics.

Society News.—The Chicago Surgical Society met at the University Club, February 1; the speakers were Drs. Daniel N. Eisendrath and Robert A. Arens on "Cholecystography and Pyleography as Aids in Differentiation of Biliary and Renal Calculus"; Kellogg Speed, some joint infections in adults, and tumor of the chest wall; John W. Nuzum, "Acute Hemorrhagic Pancreatitis"; Harry E. Mock and Géza De Takáts, "Hyperglycemia Following Head Injuries"; David C. Straus, subcutaneous traumatic rupture of the spleen, and Charles F. Sawyer, "Presentation of an Unusual Case."——Dr. Herman N. Adler gave a public lecture at the Academy of Science Building, Lincoln Park, January 27, on medical hygiene.——The Infant Welfare Society of Chicago, during 1928, "cared for" 16,171 mothers and babies at a cost of $187,700, it was reported at the annual meeting of the society at the Stevens Hotel, January 30. About 11,700 of these patients were infants and about 3,000 others were less than 6 years of age. Mr. Philip D. Armour was elected president to succeed Lucius Teter, who resigned after having been president about ten years. Dr. Isaac Abt addressed the meeting on "The Contribution of Benjamin Franklin to Medical Science."

INDIANA

Society News.—The Madison County Medical Society, Alexandria, was addressed, January 23, by Dr. Thurman B. Rice, associate professor of bacteriology and public health, Indiana University School of Medicine, on the bacteriophage.——The Fort Wayne Medical Society, Fort Wayne, was addressed, January 22, by Drs. Lewis J. Pollock and Loyal E. Davis, of Chicago, on "Causes and Diagnosis of Paraplegia" and "Injuries to the Spinal Cord," respectively. Dr. Malcolm L. Harris, Chicago, President-Elect of the American Medical Association, was announced as the speaker for the March meeting.——Dr. Clement L. Slonaker has been appointed head surgeon to the Culver Military Academy to succeed the late Major Charles E. Reed.

Bills Introduced.—House bill 141 appropriates $500,000 for the building of a tuberculosis sanatorium in southern Indiana. House bill 176 provides that the latest revision of the United States Pharmacopeia and the National Formulary and subsequent revisions thereof shall be recognized by the Indiana Board of Pharmacy as standard for the purity and strength of drugs. House bill 186 creates a board of barber examiners and regulates the practice of barbering. Senate bill 137 authorizes counties and cities to establish and maintain full-time health departments, and provide for the appointment of county and city health councils and county and city health commissioners. House bill 177 requires three years' experience and eighteen months' schooling for registered assistant pharmacists. House bill 189 amends the law concerning insanity inquests so as to allow medical examiners 10 cents a mile for attending hearings or making examinations. House bill 231 authorizes dental inspections of school children, treatment to be optional with the parents. House bill 239 creates a board of cosmetologists and hairdressers and regulates the occupation of cosmetology and hairdressing. The following bills have passed the house: House bill 69, providing for the appointment by the governor of a board of trustees for the feebleminded, insane and epileptic colony at Butterville, the superintendent of this colony to be a reputable physician employed by the board of trustees. House bill 51, providing that a county hospital be established whenever 30 per cent of the residents present a petition to the board of commissioners to establish such hospital.

IOWA

Bills Introduced.—House bill 96 provides for the suspension of the license of physicians and pharmacists who have been convicted of a violation of the federal statutes and regulations relating to intoxicating liquors or to narcotics. House bill 103 adopts measures to eradicate bovine tuberculosis. House bill 111 limits the liability of an employer for medical and surgical attention given injured employees to $200. All charges are subject to the approval of the industrial commissioner. Senate bill 88 requires coroners to report immediately to the state bureau of investigation all deaths coming within their jurisdiction. Senate bill 95 authorizes the board of supervisors and the council of a city or town to levy a public nurse fund. House bill 115 provides that incurable insanity for a period of three years shall be ground for divorce. House bill 122 provides that no autopsies may be performed except on order of the coroner. House bill 131 provides for the equipment of buildings used as hospitals to include safeguards for patients, in the form of permanent and removable bars and heavy screens for windows of rooms where patients are confined. Senate bill 105 provides that permits to licensed pharmacists be limited to ten years.

KANSAS

Society News.—The Leavenworth County Medical Society, Leavenworth, was addressed, January 7, by Dr. Harry R. Wahl, dean of the University of Kansas School of Medicine, on influenza, illustrated with pathologic specimens.——The Sisters of St. Francis recently opened a $500,000 hospital at Emporia.——The new building for Bethesda Hospital will be ready for occupancy about March 1.——Dr. Clinton C. Fuller, Columbus, has tendered his resignation as health officer of Cherokee County, effective March 1, in order to engage in private practice.

Bills Introduced.—House bill 183 amends the drug act prohibiting the sale of coca and narcotics by providing that the provisions of the act shall not apply to decocainized coca leaves or preparations made therefrom or to other preparations of coca leaves which do not contain cocaine. House bill 186 provides for the investigation and regulation of institutions and associations created for the purpose of supervising and caring for dependent children. House bill 189 regulates the manufacture and sale of vinegar. House bill 194 creates a state plumbing board to supervise plumbing.

MAINE

Bills Introduced.—Senate bill 80 amends the law requiring the superintending school committee of every city to cause every child in the public schools to be given a physical examination once a year by requiring further that tests of hearing shall be made by some mechanical apparatus adequate to detect even slight degrees of hearing loss. Senate bill 112 provides that operations may be performed to prevent the reproduction of feeblemindedness or in the treatment of mental disease if consent is obtained from the patient when mentally competent to give such consent or from his guardian if the patient is incompetent. House bill 331 provides that applicants to engage in the business of an apothecary must give evidence of having been employed in an apothecary store where physicians' prescriptions are compounded at least four years, and of graduation from some regularly incorporated medical college or college of pharmacy. House bill 98 requires every person entering on the business of an apothecary to show apprenticeship for at least four years in an apothecary store where physicians' prescriptions are compounded, and graduation from some regularly incorporated medical college or college of pharmacy.

MARYLAND

Bills Introduced.—House bill 66 provides for an increase in the membership of the state board of health by the addition of a doctor of dental surgery. House bill 84 makes hopeless insanity a ground for divorce. House bill 103 makes insanity a ground for divorce.

Society News.—The painting by Sargent, "The Four Doctors," will soon be moved from Johns Hopkins University to the new William H. Welch Medical Library in the hospital group. This picture portrays the late Sir William Osler and Dr. William S. Halsted, Dr. Howard A. Kelly and Dr. Welch.——The Washington County Medical Society held an historical program, Dec. 14, 1928, the speakers being Dr. O. H. Williams Ragan, Hagerstown, on "Reminiscences of Fifty Years," and Dr. Peregrine Wroth, Jr., Hagerstown, on Richard Pindell, a surgeon of Revolutionary times who lived in Hagerstown; Dr. William D. Campbell, Hagerstown, presented at this meeting an old book of the minutes of the society in 1809.——The Baltimore City Medical Society held a symposium on poliomyelitis, February 1. Papers were read by Drs. Robert H. Riley and Valcoulon L. Ellicott on epidemiology; Drs. Manuel G. Gichner, Myron G. Tull and George P. Berry discussed serum treatment, and Drs. Robert W. Johnson, Jr., and Robert Tunstall Taylor, orthopedic treatment.

MASSACHUSETTS

Bills Introduced.—Senate bill 187 provides that an insane person, an idiot or a feebleminded person under commitment to an institution for the feebleminded shall be incapable of contracting marriage. Senate bill 224 provides for an annual registration fee of $2 for dentists and for publication annually by the board of registered dentists. Senate bill 229 prohibits the spraying with poison of fruit trees while in blossom. House bill 602 creates a state board of hairdressers and cosmetologists and regulates the occupations of hairdressers and cosmetologists. Senate bill 225 establishes a board of examination and registration to regulate the practice of chiropractic. House bill 803 provides for a lunacy commission in each county to pass on all insanity commitment cases. House bill 913 requires hospitals receiving state aid to render emergency medical treatment or first aid in cases of accident or injury. House bill 914 directs the department of public welfare to inquire into and report on crippled children. The following bill was passed by the house: House bill 54, extending to optometrists the provisions of the statute of limitations for malpractice as is now accorded physicians, surgeons and dentists.

Boston Claims Typhoid Record.—On the basis of a population of 799,200, the death rate of Boston for 1928 was 14.5; of the 11,560 deaths during the year, 18 per cent were in nonresidents. As compared with the previous year, the health department says that there was an increase of 458 deaths. The death rate from typhoid, the lowest ever recorded, was 0.63 per hundred thousand of population, which, the department says, is probably not equaled by any other large city in the world. There was a further decline in deaths from tuberculosis, the rate being 83.1, the lowest ever recorded for this disease in Boston. The death rate of infants under 1 year of age was the lowest ever recorded in Boston, the infant mortality rate being 76.66. Whooping cough caused fifty-two deaths; two cases of leprosy were discovered, and smallpox was found on three different occasions in the city. Boston has five health units and five other districts in each of which diagnostic clinics have been instituted. In all, 1,272 clinics were held for the examination and diagnosis of 13,364 persons, an average of eleven persons per clinic. The Boston health units house organizations and associations, and are clearing houses for health activities in the sections where they are located. In addition to these, the health department maintained nineteen child health conference stations at which every week thirty-one conferences were held, devoted exclusively to babies. The birth rate in Boston last year declined slightly to 23.59, as against 24.05 for 1927. A normal birth rate for a large city, the department says, is 25. Boston continues to show a small decline in the birth rate each year.

MICHIGAN

Bills Introduced.—House bill 26 amends the law prohibiting any person sick with a communicable disease from being brought into any part of Michigan without the special permit of the board of health by providing that any county may transport persons to and from county hospitals and sanatoriums without the special permit of the board of health. Senate bill 87 regulates the production, handling, sale and disposition of milk, cream and other dairy products. House bill 22 creates a board of chiropractic examiners and regulates the practice of chiropractic.

Personal.—Dr. Roy A. Morter has become medical superintendent of the Kalamazoo State Hospital after fourteen years' service on the staff.——Dr. Donald C. Beaver, Detroit, became first assistant in pathologic anatomy at the Mayo Clinic, Rochester, Minn., January 1.——Dr. Frederick T. Zieske, health officer of Roseville since the village was established, resigned, effective January 26.——Dr. Richard W. McLain Quincy, has been appointed chaplain of the Michigan state prison at Jackson. Dr. McLain formerly practiced medicine at Quincy, and for several years has been pastor of a church there.——Dr. Thomas Zelinsky has been made chief of staff of the Nichols Memorial Hospital, Battle Creek, for the ensuing year.

MINNESOTA

Society News.—The Minnesota Academy of Medicine was addressed, February 13, at the Town and Country Club, St. Paul, by Dr. William A. Coventry, Duluth, on spinal anesthesia; Dr. Arthur N. Collins, Duluth, "Fractures in the Knee Joint"; Dr. Edward L. Tuohy, Duluth, diarrhea, base equilibrium, alkalosis and tetany, and Dr. Frank J. Hirschboeck, Duluth, spontaneous pneumothorax.

Bills Introduced.—Senate bill 177 adds to the list of compensable occupational diseases, contagious and infectious diseases contracted in the care or handling of any person having contagious or infectious diseases by a person regularly employed in contagious work. Senate bill 89 provides that the state board of control shall appoint a special agent to be known as the eugenic director, who shall recommend the asexualization of certain mentally deficient persons.

MISSOURI

Bills Introduced. — Senate bill 408 creates the Missouri state commission for crippled and handicapped children. Senate bill 410 creates a state board of embalmers and regulates the business of dealing with dead human bodies. House bill 210 prohibits the managing of any pharmacy except by registered pharmacists. The provisions of this bill do not apply to physicians and dentists. House bill 211 requires the labeling of drugs of coal tar origin and an explanation of their effects. House bill 212 provides that no proprietary drug may be sold at retail unless its formula shall have been filed with the secretary of the state board of health. House bill 213 requires the date of the manufacture of patented or trade mark drugs to be plainly visible on the label or outside wrapper. Senate bill 407 creates a state department of mental diseases. House bill 204 regulates the practice of pharmacy and the manufacture, sale and distribution of drugs, poisons and chemicals. House bill 303 provides that, in the use of paint spraying machines, equipment must be provided to carry off fumes of a toxic or poisonous nature.

Society News.—Dr. Jesse E. Douglass, Webb City, read a paper on "Diagnosis of Tuberculosis" before the Jasper County Medical Society, Dec. 18, 1928. —— Dr. William W. Ellis, Marceline, addressed the Linn County Medical Society, Marceline, recently, on diabetes, giving his personal experience during the last fifteen years.——The Nodaway County Medical Society was addressed, Dec. 14, 1928, by Drs. James G. Montgomery, Kansas City, on "Differential Diagnosis in Acute Abdominal Diseases," and Donald R. Black, Kansas City, on the anemias. —— The Randolph-Monroe County Medical Society was addressed, Dec. 20, 1928, by Dr. Ralph A. Kinsella, St. Louis, on "Recent Studies on Rheumatism," and Dr. Charles H. Neilson, St. Louis, on "Preparation of the Patient for Operation from the Standpoint of the Internist."——The Jackson County Medical Society, Kansas City, was addressed, February 12, by Mr. L. B. Roberts of the central Asiatic expedition on "The Peoples of the Gobi Desert," illustrated with lantern slides; Dr. James C. Masson, Rochester, Minn., spoke on "Carcinoma of the Uterus."——Among others, Dr. Frank C. Neff addressed the Kansas City Academy of Medicine, February 1, on "The Constitution of the Undernourished Child."

MONTANA

Bills Introduced.—House bill 44 regulates the production, dispensing and possession of marihuana. House bill 43 amends the state narcotic act by excluding marihuana from the list of drugs deemed to be narcotic.

NEBRASKA

Bills Introduced.—Senate bill 108 amends the law regulating barbering by requiring all applicants to have had four years of high school work and to have attended a school of barbering directed by a person holding the degree of doctor of philosophy or master of arts. Senate bill 112 provides that incurable insanity and confinement in an asylum for a period of five years shall be grounds for divorce. House bill 322 provides that equal rights and privileges shall be given to all physicians and surgeons licensed to practice in the state in all hospitals and similar institutions supported in whole or in part from public revenue. The following bill has been passed by the house: house bill 16, prohibiting the issuance of free transportation by a railroad company except to physicians and surgeons actually employed by the company and the dependent members of their immediate families, was passed by the house.

NEVADA

Bill Introduced.—Senate bill 9 provides that any county may establish a public hospital, levy a tax and issue bonds therefor.

NEW HAMPSHIRE

Bills Passed.—House bill 176, providing that there shall be three members on the board of chiropractic examiners, and house bill 177, requiring all licensed chiropractors to pay a license fee of $5 the first of each May, were passed by the house.

NEW JERSEY

Bill Introduced.—Senate bill 44 amends the osteopathic act by providing that the holder of a license to practice osteopathy may perform minor surgery and obstetrics without restriction.

NEW MEXICO

Bills Introduced. — Senate bill 28 provides that county health officers shall make three copies of birth and death certificates, one copy to go to the county clerk, one to the state health bureau, and the other to be retained by the county health officer. Senate bill 32 provides that the state health board shall consist of two women and three licensed physicians.

NEW YORK

Society News.—Among others, Dr. Flurence W. McCarthy, North Bangor, addressed the Franklin County Medical Society, Malone, recently, on pneumonia. —— Dr. Baldwin Mann has been elected president of the Erie County Medical Society, Buffalo, for the ensuing year; Dr. Louise W. Beamis was elected secretary. This is said to be the first time the society has elected a woman to office. Dr. Mary J. Kazmierczak was also elected delegate to the state medical society.——At the annual meeting of the Saratoga County Medical Society, Saratoga Springs, the guests of honor were those members who had been in practice at least fifty years: Drs. Gow, Cotton, Crombie and Stubbs. It was voted that they be given life memberships in the society and their dues to the state society paid from January 1.——The one hundred and twenty-second annual meeting of the Suffolk County Medical Society was addressed, recently, by Dr. Joseph H. Globus, New York, on "Cerebral Apoplexy." —— The Chautauqua County Medical Society, Fredonia, was addressed, Dec. 12, 1928, by Dr. Abraham H. Aaron, Buffalo, on "Advances in Gastro-Intestinal Therapy."——The Nassau County Medical Society held a joint meeting with the county dental society, January 29, at the Rockville County Club; Leo Winter, D.D.S., professor of oral surgery, New York University Dental School, spoke on "Focal Infections of the Mouth," and Dr. Milton J. Raisbeck on "Focal Infections."——The next lecture of the Albany County Mental Hygiene Association at the Institute of History and Art, Albany, will be given, March 7, by Dr. Arthur H. Ruggles, superintendent, Butler Hospital, Providence, R. I., on "School and College Mental Hygiene." The fourth lecture will be given, April 11, by Dr. Douglas A. Thom, director of habit clinics of Boston, on "Habit Training for Normal Children." The first two lectures were by Dr. George K. Pratt, assistant medical director, National Committee for Mental Hygiene, on "Changing the Child's Behavior," and by Dr. William Healy, director, Judge Baker Foundation, Boston, on "Study of Misconduct in Children."

Bills Introduced.—House bill 495 adds "any and all disabling diseases and disabling illnesses" to the list of compensable occupational diseases under the workmen's compensation law. House bill 522 makes it an assault in the second degree to administer unlawfully any drug or medicine, the use of which is dangerous to life or health. House bill 561 creates public welfare districts for the administration of all public relief in the territory. House bill 596 amends the health law relative to the duties of health officers by eliminating the duty of examining school children. House bill 638 amends the workmen's compensation law by allowing an injured employee to recover as part of the compensation all amounts expended by him for medical and surgical attention. House bill 639 requires cosmetics to bear labels stating that the formula does not contain arsenic, lead salts and similar ingredients over a certain percentage. Senate bill 399 provides a punishment of not less than five nor more than ten years' imprisonment for being in possession of narcotics. Physicians and surgeons are specifically exempted from the provision. Senate bill 402 amends the law relative to the duties of health officers by eliminating the duty of examining school children. House bill 186 amends the

civil practice act by providing that an order to produce hospital records in court must be served at least five days before the day fixed for the production of such records in court. House bill 611 amends the workmen's compensation law, in relation to occupational diseases, by adding any and all disabling illnesses. House bill 618 amends the public health law in relation to the supervision of public summer camps and cottages by the department of health by providing that there shall be an inspection from time to time of all public summer camps and cottages. Senate bill 512 provides that the board of medical examiners shall consist of three or more members as determined by the regents of the state of New York. Senate bill 522 provides that the board of supervisors of any county may appropriate money toward the maintenance of any duly incorporated society or organization operating a preventorium or health camp for undernourished children or those threatened with tuberculosis. House bill 679 provides that a person not vaccinated shall not be admitted or received into a school in a city having a population of 15,000 or more inhabitants. House bill 710 provides for threefold damages for injuries caused by unlawfully furnishing, supplying or administering dangerous drugs or medicines. The senate and the house passed senate bill 179 which authorizes the city of Olean to issue bonds to pay the expenses of the health officer and to pay for damages arising from the recent epidemic of typhoid fever. Senate bill 204 permitting contract for maintaining tuberculosis patients from another county in a county hospital has passed both houses.

New York City

Fifth Harvey Lecture.—Dr. Wade H. Brown, member of the Rockefeller Institute for Medical Research, New York, will deliver the fifth Harvey Society Lecture at the New York Academy of Medicine, February 21, on "Constitutional Variation and Susceptibility to Disease."

Second Annual Graduate Fortnight.—The New York Academy of Medicine announces that arrangements are being made for a second annual graduate fortnight to be held from October 7 to 19. It will consist of coordinated clinics and courses in hospitals and teaching institutions on the subject of "Functional and Nervous Problems in Medicine and Surgery," including such special subjects, among others, as sleep and insomnia, the involuntary nervous system, allergy and the nervous system, surgery of the vegetative system, and endocrines and the vegetative system. No fee will be charged for any part of the program. The profession is generally invited, as well as social workers and others interested in public welfare.

Society News.—According to the Merchants' Association of New York, 1,183 lives were lost by accidents in the industries in New York during 1928. The association, however, carried on an accident prevention contest among metal manufacturers covering the same period and among the 9,275 employees who participated not a life was lost. This was the fourth contest conducted by the merchants' association and the last one, like the others, demonstrated, the announcement states, that it is the human equation which is the hardest factor in the prevention of accidents. In the last contest, ninety-three metal manufacturers participated and the employees came in contact with practically all kinds of machinery; yet the largest number of accidents occurred in the handling of material.

Personal.—Dr. Jeremiah T. Simonson, professor and head of the department of pediatrics and chief of the division of medicine, New York Homeopathic College and Flower Hospital, was tendered a testimonial dinner, January 29, by about 250 associates and friends. He was presented with an inscribed clock.——At the third annual exhibition of physicians' art work, New York Academy of Medicine, prizes were awarded to Dr. Louis C. Schroeder, New York, for a portrait bust of a boy, and to Dr. Robert Koch, New York, for a marquetry chess board containing 8,260 pieces of wood. This is the first year that prizes have been given.——Dr. Lewis C. Wagner has been appointed chief of the department of orthopedic surgery and Dr. Frank B. Orr, chief of the pediatric department at St. Mark's Hospital, succeeding, respectively, Drs. Thomas H. Cherry and Otto Maier.

NORTH CAROLINA

Bills Introduced.—Senate bill 41 permits druggists to fill prescriptions containing alcohol, written by physicians for medical purposes, when in compliance with the provisions of the Volstead Act. Substitute for house bill 222 would require the public schools of the state to furnish adequate instruction in the subject of alcoholism and narcotism.

NORTH DAKOTA

Bills Introduced.—House bill 73 requires county coroners to be physicians. Senate bill 101 requires the licensing of dental hygienists by the board of dental examiners. Senate bill 102 amends the dental law so as to permit dental students and physicians and surgeons to work on teeth. House bill 90 creates a state board of chiropody examiners and regulates the practice of chiropody.

Frozen While Making a Call.—Twelve hours after he had been overcome by exhaustion in a blizzard, the body of Dr. Walter P. Nelson of Powers Lake was found by a party of searchers. Dr. Nelson had been caught by the blizzard while making a professional call and had lost his way home driving across Powers Lake. He had locked his stalled car and set out on foot for home and was within a few rods of a farm house when overcome. He was 45 years of age and is survived by a wife and three children.

OHIO

University News.—R. Keith Cannan, senior lecturer in biochemistry, University of London School of Medicine, will give a laboratory course at the summer session of Western Reserve University School of Medicine, Cleveland, on selected topics in biochemistry and a series of lectures on biologic oxidations and reductions.

Bills Introduced.—Senate bill 51 appropriates $816,661.04 for the construction of a new institution for the feebleminded in the northern part of the state. House bill 83 amends the osteopathic act by requiring in addition to the professional course of osteopathy "a certificate from a reputable college as evaluated by the entrance examiner of the state medical board showing that the applicant has had two or more years of premedical college work in said college." House bill 81 makes the state prohibition law conform to the national law, permitting prescription for one pint instead of one-half pint of whisky. House bill 49 establishes a new state board of chiropractic.

Dr. Ravogli Honored.—A dinner will be held at the Queen City Club, Cincinnati, March 12, for which invitations have been sent to various parts of the country, in honor of Dr. Augustus Ravogli, emeritus professor of dermatology and syphilology, University of Cincinnati College of Medicine. A portrait of Dr. Ravogli by Mr. John Weiss will be unveiled and later placed in the Cincinnati General Hospital. Dr. Ravogli was chairman of the Section on Dermatology and Syphilology of the American Medical Association, 1896-1897, a former member of the Ohio State Medical Board, and a past president of the American Dermatological Association.

Department Heads at City Hospital.—The dean of Western Reserve University School of Medicine announces the appointments at the City Hospital, Cleveland, for the next two years. The appointments are made as follows: The hospital and dispensary committee of the university present the names to the executive committee of the faculty, which passes on them and sends them to the board of trustees of the university for ratification; they are finally approved by the director of the department of public health and welfare of the city. The appointments of heads of departments were as follows:

Dr. Roy W. Scott, general medicine.
Dr. Charles W. Stone, neuropsychiatry.
Dr. Harold N. Cole, dermatology and syphilology.
Dr. Henry J. Gerstenberger, departments of pediatrics and contagious diseases.
Dr. Joseph C. Placak, tuberculosis.
Dr. Carl A. Hamann, general surgery.
Dr. George I. Bauman, orthopedics.
Dr. Henry L. Sanford, urology.
Dr. William B. Chamberlin, otolaryngology.
Dr. William E. Bruner, ophthalmology.
Dr. Arthur H. Bill, obstetrics.
P. I. Aufderheide, D.D.S., dental surgery.
Dr. Howard T. Karsner, pathology.

OKLAHOMA

Society News.—Dr. Charles C. Dennie, Kansas City, Mo., addressed the Tulsa Academy of Medicine, January 16, on "Neurosyphilis in Children."——The Tulsa County Medical Society was guest of the staff of the Oklahoma Hospital, January 14. Dr. Sidney C. Venable read a paper on "Rôle of the Pathologist in Malarial Infections."——Dr. William Patton Fite, Muskogee, addressed the Pittsburg County Medical Society, recently, on gallbladder visualization.——Dr. John O. Polak, Brooklyn, was scheduled to address the Okmulgee County Medical Society, January 18.

OREGON

Bills Introduced.—House bill 229 limits the hours of labor to be performed by licensed pharmacists in drug stores. House bill 249 requires all manufacturers of poisons used for spray purposes to place on the container the date of manufacture.

Personal.—The Lane County Medical Society, Eugene, recently awarded the first life membership in its forty years of existence to Dr. George O. DeBar in recognition of his long service to the community as a practitioner.——Dr. David Robinson has been elected president of the Tillamook Kiwanis Club.

Increase in Death Rate in 1927.—Reports just released by the U. S. Department of Commerce indicate that the Oregon death rate in 1927 was 1,147 per hundred thousand of population, as compared with 1,124 in 1926. The principal increases in rates were from heart disease and influenza. There were decreases, however, in the rates from enteritis, pneumonia, whooping cough and diphtheria.

Society News.—The Portland Academy of Medicine and the Medical History Society of the University of Oregon were addressed, January 10-11, by Dr. Paul J. Hanzlik, professor of pharmacology, Stanford University School of Medicine, San Francisco, on "Antirheumatic Remedies" and "The One Hundred and Twenty-Fifth Anniversary of the Discovery of Morphine by Sertuerner," respectively.

PENNSYLVANIA

Personal.—Dr. Matthew J. Shields, Scranton, was guest of honor at a dinner tendered by the newly formed Red Cross First Aid Association, made up of representatives of industries in Scranton. Scranton plans to have a large first aid demonstration next May (THE JOURNAL, Oct. 13, 1928, p. 1116).—— The state senate has four physicians among its members this year: William C. Hunsicker, Philadelphia; George Woodward, Philadelphia; Harry J. Bell, Dawson, in Fayette County, and Harry H. Lamb of Rouseville, Venango County.

Bills Introduced.—House bill 190 provides for the immediate registration of all births and deaths. Senate bill 223 supplements the optometry law by providing that the board of optometric education, examination and licensure may issue a certificate of licensure to any person who has regularly practiced optometry at least two years and is a graduate of an approved college of optometry. Senate bill 263 appropriates $2,000,000 for the purchase of a suitable site and the erection of buildings for the Pennsylvania state psychiatric hospital. House bill 316 creates a board of barber examiners and regulates the occupation of barbering. House bill 321 provides for the appointment of a board which shall enforce the law regulating the practice of pharmacy and the sale of poisons and drugs. House bill 415 provides that in all high schools the subject of social hygiene shall be taught. House bill 434 provides that all applicants for a marriage license shall be examined by a licensed physician. House bill 449 provides for the establishing of a state institution for the study and treatment of malignant diseases. Senate bill 39, permitting courts of record to receive the sworn statements of physicians in charge of institutions as evidence of mental condition of the patient, has passed the senate.

Philadelphia

Society News.—The fifth series of the Jayne Memorial Lectures will be delivered by Charles-Edward A. Winslow, Dr.P.H., Anna M. Lauder professor of public health, Yale University School of Medicine, at the Bellevue-Stratford Hotel, February 26, on "Man and His Environment"; March 5, "Learning the Game of Life," and March 12, "The Physician in the Modern State." Cards of admission will be furnished to members of the Philadelphia County Medical Society on application to the office of the Jayne Memorial Lectures, 1617 Land Title Building.——Among others, Dr. Joseph D. Aronson addressed the Pathological Society of Philadelphia, February 14, on "Spontaneous Tuberculosis in Snakes," and Dr. John Bauer, "Case of Septicemia in Man Due to Bacillus Suipestifer."

Personal.—Miss Mabel Reitz, a technician in the laboratory of the Philadelphia Hospital for Contagious Diseases, died, January 4, of typhoid and pneumonia, which, according to a local paper, was contracted in the course of her work.—— Dr. Lawrence Webster Fox was reelected president of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind at the forty-seventh annual business meeting, January 23.——The income from the entire $154,000 estate of the late Dr. Joseph Sailer is to go to his widow and on her death to the seven children; the principal, it is reported, is devised to the heirs of the children.——Detler W. Bronk, Ph.D., one of four sent to Europe by the National Research Council to study nerve physiology, has returned to his work at Swarthmore College after a year at Cambridge and the University of London.——Dr. Rudolf B. Teusler, head of St. Luke's International Hospital, Tokyo, Japan, was guest of honor at a dinner, February 4, at the Bellevue-Stratford; former Ambassador Roland S. Morris described Dr. Teusler's service in founding this hospital in Japan and after the Japanese earthquake of 1923 and during the World War. A campaign is under way to raise $2,000,000 for this hospital, on the staff of which are two American and forty Japanese physicians, and 140 nurses.

SOUTH CAROLINA

Bill Introduced.—Senate bill 55 provides for the licensing of druggists to sell medicinal wine and liquor under the National Prohibition Act.

Society News.—The Columbia County Medical Society was addressed, January 4, by Dr. Herbert H. Schoenfeld, Washington, D. C., on "Use of the X-Ray Man as a Consultant to the Surgeon."——Dr. Thomas D. Dotterer, Columbia, addressed the Ridge County Medical Society, recently, on prenatal and postnatal care of mothers.——The Orangeburg County Medical Society was addressed, January 24, by Dr. James A. Hayne, Columbia, state health officer, on pellagra.——Dr. Edgar A. Hines, Seneca, was elected president at its annual meeting of the South Carolina Pediatric Society, Columbia, January 15. Papers presented included, among others, "Beriberi in Infants" by Dr. Joseph I. Waring, Jr., Charleston, and "Juvenile Pulmonary Tuberculosis," by Dr. H. D. Wolfe, Greenville.—— Dr. William A. Woodruff has been appointed a trustee of the Medical College of the State of South Carolina, Charleston.

SOUTH DAKOTA

Bill Introduced.—Senate bill 58 amends the law regulating the sale of poisons by scheduling under A or B drugs deemed to be poisonous.

TENNESSEE

Bills Introduced.—Senate bill 116 regulates admission to the Davidson County tuberculosis hospital. House bill 354 authorizes persons with seven years' experience under registered pharmacists to be licensed as assistant pharmacists. House bill 359 requires all applicants for a marriage license to submit to a physical examination.

Society News.—The Memphis and Shelby County Medical Society was addressed, Dec. 4, 1928, by Dr. Edwin J. Lipscomb on "Management of Epiphyseal Osteomyelitis in Children," illustrated with lantern slides.——The Montgomery County Medical Society was addressed, January 15, by Dr. John C. Burch, Nashville, on "Uterine Bleeding" and by Dr. Beverly Douglas, Nashville, on "Empyema in Children."——At the annual banquet of the Chattanooga and Hamilton County Medical Society, January 17, Dr. John H. Revington, Chattanooga, the incoming president, gave an address on "Recent Progress in Medical Science"; Dr. Buchanan S. Wert, Chattanooga, was toastmaster.——The Nashville Academy of Medicine was addressed, February 5, by Dr. John H. Musser, professor of medicine, Tulane University of Louisiana School of Medicine, New Orleans, on "Throat Infections in General Medicine."

TEXAS

Personal.—Dr. Arb C. DeLong has resigned as health officer of San Angelo after five years' service.——Mr. I. N. Keller, Georgetown, has moved to Austin to become chief clerk of the state department of health.——Dr. Melvin C. Marrs, Sulphur Springs, has been appointed health officer of Hopkins County.——Dr. Scott E. McNeill has been named health officer of Bee County to succeed Dr. John A. Malone.

Bills Introduced.—House bill 309 requires physical education courses to be taught in public schools. House bill 426 requires the justice of peace and city clerk to register every birth and death. Senate bill 285 provides that unclaimed bodies from eleemosynary institutions shall be given to the state anatomic board. House bill 407 creates a board of nurse examiners. House bill 450 provides for the appointment by the governor of a board of nurse examiners.

Health at El Paso.—Telegraphic reports to the U. S. Department of Commerce from sixty-six cities with a total population of about 30 million, for the week ending February 2, indicate that the highest mortality rate (28.9) was for El Paso, and that the mortality rate for the group of cities as a whole was 16.7. The mortality rate for El Paso for the corresponding week last year was 17.8 and for the group of cities, 13.4.

Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits and that they have a large negro population may tend to increase the death rate.

UTAH

Bills Introduced.—Senate bill 36 vests the control of the state mental hospital in a board of six to be appointed by the governor. House bill 44 authorizes the state board of health to establish rules governing plumbing. House bill 54 provides that the control of the Utah state hospital shall be vested in a board composed of three resident citizens, one of whom shall be a woman.

VERMONT

Bill Introduced.—House bill 48 adds one licensed chiropodist to the board of medical registration who shall have voice in the deliberation of the board only in matters pertaining to chiropody.

WASHINGTON

Bills Introduced.—Senate bill 84 establishes an institution in the western part of the state for the care and custody of persons of defective mentality, to be known as the Western Washington Industrial School, and appropriates $200,000 for its erection. Senate bill 161 authorizes common carriers to grant free or reduced transportation for surgeons and physicians and their families.

Society News.—"Cushman Hospital," Tacoma, known as U. S. Veterans' Bureau Hospital number 59, closed January 15, and most of the personnel were assigned to the new veterans' bureau hospital in Portland.——Among others, Dr. Lester J. Palmer addressed the King County Medical Society, Seattle, February 4, on simple method of preparation of dextrose for intravenous administration.——The Snohomish County Medical Society was addressed, January 8, by Dr. E. Martin Adams, Everett, on "Tuberculosis of the Genito-Urinary Tract."

WEST VIRGINIA

Bills Introduced.—House bill 18 provides that a magisterial district may, by special election, provide funds for educating one or more persons for the practice of medicine and surgery. House bill 44 would permit the granting of a license to practice chiropractic without examination to chiropractors who have been engaged in actual practice for ten years or more. House bill 130 requires applicants for licenses to marry to file health certificates certifying the absence of venereal disease. House bill 300 establishes the West Virginia commission for the blind.

WYOMING

Bill Passed.—House bill 59, creating a state board of chiropractic examiners to be composed of three practicing chiropractors, has passed the house.

GENERAL

Six States Send Hygeia to Their Legislators. — The secretary of the California Medical Association has instructed the headquarters office to send *Hygeia*, the Health Magazine, to each of the senators and assemblymen in the state legislature for the coming year. California is the sixth state that is sending *Hygeia* to its legislators, the others being Arkansas, Minnesota, South Dakota, Texas and Wisconsin.

Medical Bills in Congress.—S. 5488, introduced by Senator Norbeck, South Dakota, authorizes the secretary of agriculture to carry on a ten-year cooperative program for the suppression of rabies or tularemia in predatory or other wild animals. Under the bill, the secretary of agriculture may cooperate with individuals and public and private agencies, organizations and institutions. S. 5549, introduced by Senator Smoot, Utah, provides for the disposition of revenues arising from operations of the United States Public Health Service. Such revenues are to be covered into the Treasury as miscellaneous receipts. S. 5602, introduced by Senator Johnson, California, provides for the transfer to St. Elizabeth's Hospital of American citizens legally adjudged insane in foreign countries. H. R. 13752, providing for the construction of a children's tuberculosis hospital for the District of Columbia, has been favorable reported to the House, with amendments. H. R. 15387, defining "registered nurse" and providing for the registration of nurses in the District of Columbia, has been reported to the House with the recommendation that it pass. H. R. 16652, introduced by Representative Ragon, Arkansas, provides for the enlargement of the Army and Navy General Hospital at Hot Springs National Park, Arkansas. H. R. 16722, introduced by Representative Johnson, South Dakota, authorizes the President to consolidate and coordinate governmental activities affecting veterans. Public hearings have been held on this bill. H. R. 16765, introduced by Representative Hughes, West Virginia, amends the World War Veterans' Act by extending from Jan. 1, 1925, to Jan. 1, 1930, the period within which certain diseases manifesting themselves shall be presumed to be of service origin. H. R. 16766, introduced by Representative Hughes, West Virginia, amends paragraph 7, section 202, of the World War Veterans' Act by adding the following paragraph: "That statements from competent physicians diagnosing disability as of tuberculosis should be accepted as sound proof in the absence of sputum or roentgen-ray examinations." H. R. 16793, introduced by Representative Johnson, Washington, provides for the continued employment of certain research specialists beyond the age of retirement. This bill is similar to S. 5242, reported in THE JOURNAL, January 19. House Report 2303, pursuant to H. Res. 233 appointing a committee of five members of the House to investigate federal prisons, recommends, among other things, that a hospital for the care of the criminal insane be established and that all prisoners on their admission to federal institutions be given a psychopathic examination. Senate J. Res. 209, introduced by Senator Wheeler, Montana, creates a joint committee to be known as the Committee on Narcotic Traffic to make a study of the use of habit-forming drugs and to report not later than Dec. 31, 1929, to the first session of the Seventy-First Congress, its findings and recommendations for the amendment and revision of existing laws necessary to prevent and curtail the unlawful sale, traffic and use of such drugs. The companion resolution in the House is H. J. Res. 404, introduced by Representative LaGuardia, New York. H. R. 132, authorizing the erection of a sanitary fireproof hospital at the National Home for Disabled Volunteer Soldiers, Dayton, Ohio, has been reported favorably by the Senate Committee on Military Affairs. This bill passed the House, Feb. 20, 1928. H. R. 15523, authorizing representatives of the several states to make certain inspections and to investigate state sanitary and health regulations and school attendance on Indian reservations, Indian tribal lands, and Indian allotments, has been favorably reported by the Senate Committee on Indian Affairs. This bill passed the House. January 30. H. R. 16845, introduced by Representative Rankin, Mississippi, amends the World War Veterans' Act by providing that any honorably discharged disabled veteran who became permanently and totally disabled in fact prior to Jan. 1, 1928, and who served ninety days or more during the World War, shall be eligible for the full benefits of the act regardless of the origin of the disability. H. R. 16848, introduced by Representative Nelson, Wisconsin, proposes to regulate the conferring of degrees in the District of Columbia. H. R. 16874, introduced by Representative Fish, New York, authorizes the commissioner of prohibition to pay such sums as he may deem appropriate for information concerning violations of the narcotic laws. H. R. 16875, introduced by Representative Fish, New York, authorizes the appointment of narcotic inspectors or agents of the Bureau of Prohibition to duty in any foreign country. H. R. 16879, introduced by Representative Fish, New York, amends the World War Veterans' Act by providing that veterans entitled to hospitalization under section 202(10) of the act shall be paid a hospital allowance at the rate of $8 a month during hospitalization unless they are entitled to benefits in the form of compensation or pension in excess of that amount. H. R. 16884, introduced by Representative Weller, New York, repeals the National Prohibition Act and provides that the manufacture, sale, or transportation of distilled liquor within, the importation thereof into, or the exportation thereof from, the United States and all territories for beverage purposes shall be prohibited. H. R. 16918, introduced by Representative Welsh, Pennsylvania, proposes to regulate the practice and teaching of cosmetology in the District of Columbia. Cosmetology is defined "to be and include any or all work generally and usually included in the terms 'hairdressing' and 'beauty culture' and performed in so-called hair-dressing and beauty shops, ordinarily patronized by women, which work is done for the embellishment, cleanliness and beautification of the woman's hair, scalp, face, arms or hands, or the upper part of her body." H. R. 16929, introduced by Representative Fish, New York, is similar to H. R. 16879. H. R. 13251, providing for the vocational rehabilitation of disabled residents of the District of Columbia, has been passed by the Senate. This bill passed the House, May 25, 1928.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 19, 1929.

School Hospitals

A memorandum by the ministry of health has been issued by W. Dalrymple-Champneys on "The Accommodation for the Sick Provided at Certain Public Schools for Boys in England." In only one or two cases among the schools visited by him was the standard of the Voluntary Hospitals Commission concerning the space necessary per bed attained or exceeded. He says that "the fixing of such a minimum standard applicable to sick-bed accommodation at public schools is a matter of considerable importance." He suggests that the expression of sickness rates in the form of "boy days" might be adopted. (The number of "boy days" of sickness in a school is obtained by adding together all the days lost on account of sickness by boys becoming sick during any given period. This number is, of course, equal to the number of boys becoming sick multiplied by the average number of days' absence per boy on account of sickness). He indicates what he regards as standard requirements. The total number of sick-beds, including those in house sickrooms, sick-house, infirmary and sanatorium, should not, as a rule, be less than about 18 per cent of the total boy population. The provision of sickrooms in the houses should be regarded as essential, except for schools which are so centralized that arrangements can be made for the immediate removal of sick boys to the infirmary, sick-house or sanatorium. The minimum number of sickroom beds should be 6 per cent of the total boy population, or three beds for the usual house of fifty boys, and these should be arranged in two rooms, so as to allow for the temporary accommodation of an infectious case. The following tables are given:

Standards for Sick-Bed Provision

Nature of Sick Accommodation	Number of Beds Expressed as Percentages of Boy Population
Total number of beds	18.0
House sickroom beds	6.0
Beds outside houses:	
Total	12.0
Noninfectious	2.5
Infectious	9.5

Standards for Space per Bed in Public School Sick Accommodation

Wall space	8 ft.	
Space between beds	5 ft. 6 in.	
	Large Wards	Small or Observation Wards
Floor space	100 sq. ft.	120 sq. ft.
Effective air space	1,000 c. ft.	1,200 c. ft.

It is strongly recommended that, when cases of infectious or respiratory diseases are being dealt with, the space per bed should be considerably increased by spacing out the beds or by leaving one unoccupied bed between every two patients.

The Defense of London Against Poison Gas

As London is situated near the coast, within easy flying distance from the continent, and offers by its great size a huge target, it is in special danger of a poison gas attack during war. The authorities are alive to the necessity of an effective form of defense, and are searching for one for civilian use. But the more successful that measure, the less desirable it is to demonstrate it in advance. In the national interest any possible enemy should be kept in ignorance of our plans until action is necessary, even though secrecy may give the impression at home that no steps are being taken to provide the civilian with protection in an emergency. A somewhat theatrical rehearsal of a gas attack in Japan was carried out some time ago, when the population was served out with gas masks and expected to use them. If to be prepared for gas attacks is to have 10,000,000 gas masks in store for distribution to the inhabitants of Greater London, then indeed we are unprepared now and will be for many years to come. Effective protection must rest on the use of some readily acquired material and not on the issue of any special apparatus from a central store.

The problem is not easy of solution, and is complicated by the fact that various types of gas may be used. The chlorine and phosgene types and those which are poisonous only in very high concentrations can, according to J. B. S. Haldane, be kept out by respirators, but the arsenic compounds, when in the form of smoke, are difficult to stop by any form of respirator which will permit reasonably rapid breathing. The group of blistering gases, of which mustard gas is the best known, are likely to be the most effective in terrifying a civilian population. The huge underground garages, which are lightly talked of as being useful in peace time and providing bomb-proof shelters in war, will be valueless against a heavy gas of the mustard type, which creeps and lies along the ground. If gas attacks are to be contemplated, the logical refuge is the roof or upper stories, to which the gases will not reach or where they will be so diffused by the free currents of air as to be innocuous.

Another factor, which does not seem to have been generally appreciated, is the enemy's problem of bringing his gas to the target, and then, when unloaded, of insuring that it will actually form the concentration desired. It was recently stated that a 2,000 ton load of phosgene gas would create a lethal atmosphere up to 30 feet high, but how many aircraft would be needed to carry that load? To carry even a load of 40 tons some hundreds of miles would need very elaborate staff work and a big fleet of aircraft. The gas itself is very light and the greater percentage of the bomb load of any one airplane will be made up of the containers of the gas and not the gas itself, so that forty aircraft, each carrying a ton of load, will carry a very small quantity of gas. If the gas is at atmospheric pressure the container can be of very light weight, and the quantity carried will be negligible; if the gas is under pressure the weight of the container will increase out of all proportion to the amount of gas. The problem of securing the desired diffusion and no more is another matter, and experts are divided as to the results that can be hoped for. The main danger from a poison gas attack is held to lie less in loss of life than in panic.

Fatal Use of an Ultraviolet Ray Apparatus

A youth, aged 21, was found lying dead in his bath, which was half filled with water. An ultraviolet ray apparatus was at the side of the bath. Examination of the body by a physician showed that death was due to shock. The apparatus was submitted to an expert on electricity, who reported that the ultraviolet ray apparatus was so constructed that a shock could be received in five ways from it: from the metal case, because of the low insulation resistance of 20,000 ohms, whereas the resistance ought to have been one of several million ohms; from the exposed end of a conducting wire removed from its position on the terminal; from the pressure on the wire guards putting the case of the instrument in direct contact with the heating element; from leakage of water into the appliance, thus completing a circuit through the water in the bath and to the earth through the water pipes; from a damaged lamp in the instrument, and, finally, from the absence of any provision for earthing the metal case. The boy persuaded his mother to let him buy the ultraviolet ray apparatus to remove comedones from the back of his neck. A book of instructions was given with the apparatus in which the user was recommended to

apply the instrument in the bedroom but not in a bathroom, because steam might interfere with the passage of the rays from the lamp. The coroner said the instructions seemed to be a "puff" suggesting that the apparatus would cure every disease that flesh was heir to. There was no adequate warning about the dangers attaching to the use of apparatus through which a house current of 230 volts might be passed. He thought it reprehensible that this appliance should be supplied by a firm posing as beauty experts.

Radiotherapy

A report on the medical uses of radium has been published by the medical research council. It consists of a summary of results prepared by the radiology committee of the council, and is based on the reports on the year's work submitted by a number of participating institutions; namely, the Middlesex Hospital, University College Hospital, St. Bartholomew's Hospital, King's College Hospital, the London Hospital, St. Peter's Hospital, London, the London Association of the Medical Women's Federation (radium for use in a group of hospitals), the General Hospital, Birmingham, the Royal Infirmary, Cardiff, the Royal Infirmary, Aberdeen, and the Irish radium committee of Dublin. The report points out that the intensities of the radium foci have in many cases been reduced gradually, with a corresponding prolongation of the time of exposure. In some forms of cancer a definite method of treatment has been arrived at: Any woman suffering from early carcinoma of the cervix uteri can have the disease locally removed by means of a definitely planned course of radium treatment as surely as by surgical means, or a man with a malignant growth of the tongue can likewise have the disease locally cured. In the latter case, even if the growth should have extended to the glands, radiosurgical methods would offer a good prospect of eradicating the disease.

Insufficient Supplies

In a report on surface radium therapy at the Middlesex Hospital, it is stated that full exploration of the subject has been prevented by insufficient supplies, as well as by lack of beds. The necessity for ample supplies of radium has been shown by results in several cases. In these there had been healing in the area to which radium was applied, but the patient had succumbed to extensions of the disease in untreated or insufficiently treated areas surrounding, or to deeper local invasion which might have been prevented by long distance application. The report comments on the fact that in only a few centers local treatment with radium is supplemented by means of x-rays. "It is rather remarkable," it says, "that this is not more often done, for the statistics of some continental centers show that better end-results have been obtained when the local radium treatment is supplemented by x-rays or externally applied gamma rays."

Psychoanalysis for Children

Naughty London children will shortly be psychoanalyzed. A child guidance clinic is to be established in which behavior problems will be studied. The clinic is being founded by the Child Guidance Council and the cost of its institution and maintenance for three years is to be provided by the Commonwealth Fund of New York, a charity founded by the Harkness family of America. The London County Council will be represented on the board of management, and the medical officers of the board of education will devote special study to it. Dr. William Moodie, formerly deputy medical superintendent of the Maudsley Mental Hospital, has been appointed principal. There will be two women psychologists and a number of men and women social workers. Children's court magistrates are to be asked to send juvenile delinquents for examination. School medical officers are also to select cases for analysis. These will include children backward in mental development, timid children and those unable to sleep because of strange fears. A study will be made of the child's life at home and at school, its surroundings, parents, companions, medical history and thoughts, and suitable treatment will be suggested. As soon as a child has been analyzed a social worker will give the parents advice as to the improvement of conditions or the removal of causes judged to be productive of the child's mental distress or wrongdoing.

PARIS

(From Our Regular Correspondent)

Dec. 19, 1928.

Lice and Mosquitoes in Infectious Epidemics

The Académie de médecine has recently received two reports on epidemics. From experiments made in Greece, Georges Blanc and J. Camonipetros have definitely established the way in which dengue fever was transmitted in the Mediterranean epidemic. There have been 800,000 cases in Greece this year. Mosquitoes were suspected of being the agents of transmission, and experiments have conclusively implicated *Stegomyia*. Stegomyias that had bitten dengue patients were always found infected. It was proved that they transmitted the disease nine days after the bite and remained infective for at least twenty-eight days longer. Mosquitoes of the *Culex* group were found not to harbor or transmit the disease.

The other report concerned investigations on a peculiar epidemic, observed in Marseilles, which has had some of the characteristics of typhus fever. It is more benign, however, and terminates spontaneously within a few days. Its microbial agent has not been found. Etienne Burnet, P. Durand and D. Olmer investigated the disease and proved that, unlike typhus, it was not transmitted by lice. Thus this is considered proof that it is not typhus. The epidemic is not serious.

Irradiated Ergosterol in Treatment of Rickets

The Société de médecine des hôpitaux de Paris has devoted one of its meetings to the treatment of rickets with irradiated ergosterol. This method is becoming popular in France. Lesné, Clément and Simon reported their results with irradiated sterols and compared their effect with that of actinotherapy and cod liver oil. They have found that small doses of irradiated sterols prevent the development of experimental rickets, and that infants with early rickets recover in about one month, as shown in roentgenograms of the wrist, on daily doses of from 1 to 4 mg., which are equal to 100 physiologic units. The efficiency of the remedy depends on various factors: age of the infant, environment, diet, and duration of rickets; but, as with other remedies, sterols cannot improve lesions of the bones in pronounced rickets. Irradiated substances lose their activity in about three months; the date of irradiation therefore should be indicated on the container of the preparation. Actinotherapy has other advantages: it prevents muscular hypotonia, improves anemia and stimulates the appetite. As far as cod liver oil of good quality is concerned, besides containing up to 90 physiologic units of vitamin D in 1 cc. it is rich in vitamins of growth, assimilable fats and other nutritive substances. Flandin said that, while irradiated ergosterol has antirachitic effects, cholesterol seems to have besides this a direct effect on growth and also to be antitoxic and antiinfectious. Lesné replied that, with regard to its antirachitic value, irradiated ergosterol is more active than irradiated cholesterol.

Institute of Colonial Medicine

The distribution of diplomas to students of the Institut de médecine coloniale has taken place in Paris. The proceedings were presided over by Professor Roger, dean of the faculty, who spoke of the foundation of the institution in 1902, by Brouardel and Blanchard, and praised the industrious attitude of the students. Professor Joyeu, assistant secretary, presented

a report on the twenty-second session, which was attended by fifty-two students—twenty-two French and thirty foreigners. Since its foundation, the institute has awarded 747 diplomas: 354 to French students and 393 to foreigners.

Louis Brocq

Louis Brocq, who recently died in Paris, had been a prominent French dermatologist for the past fifty years. A pupil of and successor to Besnier, he was head physician of the medical department of the hôpital St. Louis, where he taught. His lectures were attended by many French and foreign students. He made many therapeutic contributions to dermatology, among which are acupuncture, scarification and electrical treatment. He published a collection of clinical notes and proceedings and an essay on dermatologic therapeutics. He was the most popular authority on skin diseases in Paris for a number of years in spite of the fact that he lived a rather isolated life.

Davaine Eulogized at a Meeting of the Academy of Medicine

Every year, on December 12, the Académie de médecine has a special meeting at which the names of the recipients of the numerous prizes it is charged to distribute are announced. After enumerating the members who have died during the year, a public eulogy is given in honor of a famous former member. This year, Professor Achard, secretary general, read a eulogy to Davaine, a veterinary surgeon, who was the immediate precursor of Pasteur and whose memory has too long been overshadowed by the glory of Pasteur. It was Davaine who first discovered, in the blood of animals stricken by anthrax, living organisms in the form of small rods which he called bacteria and bacteridia and who had the courage to declare that they were the agents of the disease and their inoculation the cause of contagion. Pasteur always paid him just homage. Davaine was a modest scholar who spent his life in the laboratory and seldom appeared on the platform or at the meetings of the Académie de médecine. He presented himself at the Institut (Académie des sciences) without success and never complained of his failure.

Hypotensive Effects of Insulin

In three reports presented simultaneously at the Académie de médecine, Kisthinios described new qualities of insulin. The first report, by P. Gley and Kisthinios, showed that insulin lowers the blood pressure and that this hypotension is not due to the substance that diminishes the blood sugar but to a distinct hypotensive substance. In the second article Kisthinios reported the results of insulin treatment in several cases of hypertension. In all the patients the decrease in pressure was accompanied by improvement in their subjective and functional disturbances. The third report by R. Giroux and Kisthinios was an investigation of the effects of insulin on angina pectoris in nondiabetic patients. They reported four cases in which this treatment stopped the attacks for several months and brought about a diminution in the opacity of the aorta as shown by roentgenograms.

Typhoid Epidemic in the Region of Lyons

The epidemic of typhoid, which started three weeks ago, is now decreasing. It was stated in the first report that it was due to contamination of the city water supply by a cesspool. There have been 2,143 cases with forty-five deaths, the majority of the cases occurring in the surrounding communities. Lyons has had only 300 cases among its 600,000 inhabitants. Thirteen nurses, two maids and the manager of the hospital have had the disease. Strict measures have been observed by the sanitary service. The sale of milk coming from the typhoid area has been prohibited, and the police have superintended the selling of raw vegetables. The merchants have not permitted shoppers to handle any foodstuffs; and the disinfection of all means of public transportation, entertainment halls and many industrial establishments has been looked after. The Red Cross societies have placed their personnel at the disposal of the community. All water distributed in Lyons by the municipal service has been chlorinated. Antityphoid vaccination centers have been organized in the hospitals. Lawyers are now attempting to establish to what extent the company that maintains the water supply is responsible for the epidemic. There is no doubt that it is at fault, and many people are claiming compensation. The company is trying to prove that there was no intention to cause damage and that contamination due to the bursting of subterranean water pipes is impossible to foresee, claiming that it may result from shifting of the soil following heavy rains.

Traumatic Diabetes

R. Roussellier has reported two cases to the Société de médecine légale in which the diabetic syndrome followed cerebrospinal trauma. In one of the cases it was proved that there had been no glycosuria previous to the accident. The author insists that traumatic diabetes is rare, but, from a medicolegal standpoint, he says there are cases in which establishment of it is of legal importance, as when the one responsible for the trauma is being questioned. Diabetes caused by trauma under such conditions justifies indemnity, if not as the direct cause of the disease at least as a contributing factor. Such a factor is admitted at present in work accidents in people with a predisposition for tuberculosis.

Surgery of the Spinal Nervous System

In connection with a study of the resection of nerves, Professor Larich of Strasbourg has performed posterior radicotomy in six patients with cerebral spastic diplegia. He had good results in two cases. One patient seen after ten years was walking alone without a cane and seemed to be cured. He does not advise the operation, however, when muscular reeducation is no longer possible, as the main object of the operation is to permit such reeducation. Three other patients have been treated by ramisection, with a good result in one case that has been maintained for three years. Insufficient statistics make it difficult to compare the values of the two operations. Syringomyelia has also been treated by surgical intervention. Zéno has resorted to laminectomy with exposure of the intramedullary cavity; this was followed by a decrease in the intraspinal tension and improvement. Robineau performed the same operation on two patients in whom he obtained considerable improvement which has now been maintained for one year.

The Spread of Undulant Fever

Undulant fever is becoming more frequent in France. Since 1920, it is estimated that 10,000 people in southern France alone have had the disease. It is now found in fifteen provinces, while fifteen years ago it was limited to the Mediterranean coast. It causes relatively few deaths, but the number seems to be increasing. Thirteen deaths occurred in one region of the Alps last year. The disease spreads especially among the country people who live in contact with cattle and who milk goats and sheep and handle dung. Sheep seem to be more dangerous than goats; eighty per cent of the cases observed in Languedoc and Province are due to sheep. Goats and sheep recover rather quickly; the disease in them is principally manifested by abortion. Animals that recover remain germ carriers for a long time and thus are a source of infection for the peasants who look after them. Infection from cheese occurs only in the city and is rather rare because it is a definite source only when eaten fresh. Tests which reveal the infection in human beings do not give convincing results in goats and sheep. Thus it cannot be relied on to distinguish between the healthy animals and the germ carriers in a herd of cattle. The question

of prophylaxis is complicated because of the similarity between *Bacterium melitensis* and *Bacillus abortus*, which is found in cases of abortion in cattle and hogs in Italy, Belgium, Denmark, Poland, Africa and the United States. In France, only a few cases of undulant fever of bovine origin have been recognized so far, in the provinces of Loiret, Doubs and Bouches-du-Rhône. In a recent paper Professor Lisbonne reported the prophylaxis to be used in this disease. After having stated the inefficiency of all means applied, he advocated that reports of epidemic abortion in cattle be made compulsory. This would enable disinfection of stables to be carried out, and thus continuous control of the center of infection. The peasants, however, are not in favor of these measures as they disturb their habits and may interfere with the sale of their cattle. That is why Lisbonne proposes that a special law be established to make these reports compulsory. Reports of the disease in cases of human infection are compulsory.

The National French League Against Venereal Diseases

The Ligue nationale française contre le périe vénérien held its annual general assembly, December 16, in the great lecture hall of the Faculté de médécine under the presidency of Dr. Queyrat. The secretary general, Professor Gougerot, spoke about the activity of the league in Paris and throughout the country. The league has succeeded in organizing a special service in the department of hygiene which takes care of the prophylaxis and treatment of venereal diseases. Distribution of prizes followed. The first prize, 20,000 francs, a reward for the most important discovery in the field of venerology, was awarded to Sazerac and Levaditi for their investigations on the bismuth treatment of syphilis. The second prize, 5,000 francs, a reward for the best paper on "Heredosyphilitic Psychopathosis in Children and Adults and Its Rôle in Juvenile Delinquency," was awarded to an anonymous paper whose authors proved to be Jacques Hamel, physician in the public institutions for the insane in Maréville, and L. Drouet, former chief of the dermato-syphilographic clinic at the faculty of medicine in Nancy. Oberkirch, undersecretary of state of the department of hygiene, then spoke on the danger of venereal diseases and the necessity of improving the instruction of venerology at all faculties of medicine; he then complimented the league for its accomplishments and assured it the support of the public authorities. The meeting ended with a showing of the film "The Kiss That Kills."

RIO DE JANEIRO

(From Our Regular Correspondent)

Jan. 15, 1929.

Mycobacterium Leprae

Dr. Souza Araujo read a paper before the Society of Medicine and Surgery reporting his experiments in the Instituto Oswaldo Cruz on cultures of *Mycobacterium leprae*. He described a new species of *Actinomyces*, which he isolated from a leproma and to which he gave the name *Actinomyces lepramicola*. This species develops at the end of twenty-three days in a glycerin medium and bears some relation to leprosy bacilli until the second generation. Then it germinates in pure culture with the typical features of *Actinomyces*, aerobically sporulating in the form of a white cretaceous layer which partially covers the whole culture. Following the advice of Linsker, the German specialist on *Actinomyces*, his mediums were prepared with butter and olive oil. In the first generation the micro-organisms were not altered either in morphology or in staining characteristics, but in the second generation there was a multitude of them in the alcohol-acid-fast bacilli. This is important because it confirms the researches that were carried out by Williams in Bombay, Bost in Rangoon, Deycke and Reschad in Constantinople, Kedrowski in Moscow and Antonio Fontes in Rio. This transmutation occurred in cultures of leprosy and tuberculosis bacilli. Araujo is continuing his cultural and experimental studies, and promises that early next year he will give a more complete account of his researches.

Antitoxic Serum for Immunizing Against Venomous Snakes

Dr. Lucas Aasumção read a paper before the Society of Biology and Hygiene on antitoxic serum for immunizing against venomous snakes. He described the determination of the dosage by testing the specific anticoagulins in the plasma and the antitoxic power of the serum, and came to the following conclusions: There is a parallelism between the toxic power of the poison of *Lachesis lanceolatus* and its power of coagulation. There is no relation between the toxic power of the poison of *Lachesis lanceolatus* and its power of neutralization by the specific serum. With the bothropic poison (*Lachesis lanceolatus*) the relation between the anticoagulins of the plasma and the antitoxic power of the serum is not constant but depends on the toxic and coagulative powers of this poison. With the poison of *Lachesis lanceolatus* (jararaca) standardized so that V. J. 1 = P. J. 1, with 0.060 mg. a minimal lethal dose and 0.00045 mg., a minimal coagulative dose, the antitoxic power of those serums was, on an average, 4.3 times greater than that of the minimal coagulative dose of the plasma, while with other poison of jararaca standardized so that V. 3 = P. 3, with 0.020 mg. a minimal lethal dose and 0.00015 mg. a minimal coagulative dose, the antitoxic power of the same serums was 9.9 times greater than that of the minimal coagulative dose of plasma. These data were determined for dosages of antiophidic and antibothropic serums conjointly, but when verified separately they were not equal to those two serums. In the dosage with P. J. 1 in the antibothropic serum, its antitoxic power was 3.6 times as great as the anticoagulins of the plasma, while in the antiophidic serum, it was 5.6 times greater. With P. J. 3, the antitoxins in the antibothropic serum were eight times as great as the anticoagulins of the plasma and 15.6 times greater in the antiophidic serum. The antitoxic serums evidently have, besides their specific power, an individual tolerance.

Piedra

Dr. Olympio da Fonseca, Jr., in collaboration with Dr. A. E. de Arêa Leão, presented a report on piedra brazileira, before the National Academy of Medicine. In the past six years they have compiled, in the Laboratory of Mycology of the Oswaldo Cruz Institute, and in the Laboratory of the Dermatologic Clinic of the Faculty of Medicine of Rio de Janeiro, material from twenty-eight cases of piedra of the hair. Some of these cases were observed by them; others by Drs. Eduardo Rabello, Alcides Godoy and Flavio da Fonseca in Rio, Dr. Octavio Torres in Bahia, Dr. Samuel Leao de Moura in Santos, Dr. Epaminondas in Cuyabá, and Dr. Aroeira Neves in Bello Horizonte. The poor vitality of the parasites in the nodules prevented the preparation of cultures in many cases. All cases observed presented the same characteristic nodules around the hairs, being black, round, hard, closely adherent and of small size—the larger ones exhibiting the recognized species, which were described in 1911 by Parreiras Horta. This author showed that the nodules of piedra which have been observed in Brazil included round forms which he called cysts, and contained several fusiform cilia. This led Brumpt to separate under the name of *Trichosporon hortai*, the Colombian form, which the authors generally call *Trichosporon giganteum*. Two other cases from which material was obtained, have furnished the two South American forms of the parasite that are already known. One of them, which was first described by Eduardo Ranello and later by Parreiras Horta, corresponded to the *Trichosporon hortai* of Brumpt. The other one, which Juhel-Renoy described first, is much like the European or Asiatic

species of the genus *Trichosporon*. The authors found an interesting property in the specimens which yielded almost black growths and which fit the description of *Trichosporon hortai:* The old cultures showed fusiform spores, some of which were nodulated and all of which were generally curved and greenish yellow with buckled ends ending in thin filaments. The spores which have a length of 30 microns are identical with those which have been found in the peripilous nodules in the cases of piedra that have been observed. Their existence in both the parasitic and the cultural form of the piedra serve to characterize a new genus, which they propose to name *Piedraia*. The type species in this new genus will be *Piedraia hortai*.

ITALY

(From Our Regular Correspondent)

Dec. 7, 1928.

Reform of the Free Sanitary Service

The free sanitary service for persons without means has been radically modified in the commune of Milan. The *medici condotti* have been abolished, and the care of the poor will henceforth be entrusted to *medici fiduciari*, to which the commune will pay not a fixed salary but only an amount to cover the calls that each has made during the month. The commune will be divided into twenty urban sanitary districts and fourteen rural departments. Obstetric aid will be entrusted to thirty-three groups of midwives, who will likewise be compensated according to the services performed during the pregnancy, childbirth and puerperium of women enrolled in the list of those entitled to free medical assistance. In general, free medical assistance will be taken over by new sanitary organizations, such as Guardie notturne, Posti di pronto soccorso and Centri di assistenza materna e infantile.

Congress of Surgery

The Società italiana di chirurgia held its thirty-fifth congress in Rome, under the chairmanship of Professor Alessandri, director of the Clinica chirurgica of the University of Rome.

THE SURGICAL TREATMENT OF CANCER

The first main topic on the program was "The Results of the Surgical Treatment of Cancer of the Digestive Apparatus in Italy from 1920 to 1927." The first part of the topic was presented by Professor Simeoni of Naples, who considered the results of the surgical treatment of cancer of the mouth, the pharynx, the esophagus and the large intestine, exclusive of the rectum. The statistics analyzed by the speaker comprised 1,323 cases, 968 of which concerned the oral cavity; eighty-eight, the rhinopharyngeal passages, and 267, the large intestine. With reference to the oral cavity, Professor Simeoni considered separately the various regions and the organs contained therein. As to cancer of the lip, while 49.08 per cent of the patients were still living three years after the operation, after the lapse of five years or more the number of survivors was reduced to 17.60 per cent. Therefore, according to the speaker, surgery alone is not at present in a position to effect a permanent cure in this type of neoplasm. From an examination of the statistics of Italy for the period from 1920 to 1927, it appears that cancer of the cheeks does not present the extremely high malignity that was formerly supposed. Cancer of the tongue is more grave than cancer of the lip. In 383 operative cases there was a postoperative mortality of 4.5 per cent, with 17.96 per cent of cures after three years and 12.10 per cent of cures after five years and longer. Still more grave is cancer of the floor of the mouth. In the sixty cases studied, only one cure was noted, which was accomplished by an intense application of roentgen rays. From the anatomopathologic point of view, all these buccal neoplasms may be classed as epitheliomas of a malpighian type.

As for tumors of the pharynx and esophagus, only meager results are accomplished by surgical intervention, owing, in part, to the fact that in many cases the tumors are not readily accessible.

In discussing cancers of the large intestine, the speaker considered 220 operative cases; compared the one-stage with the pluristage methods, and expressed the conviction that the latter have given better results for all the parts of the large intestine except the cecum and the transverse colon. The percentage of survivors three years after the operation was 12.73.

The second part of the first main topic concerned the results of surgical treatment of cancer of the stomach and of the rectum. The official paper was presented by Professor Baggiò of the University of Cagliari. From an examination of the statistics, the speaker found that the average duration of life following an operation for cancer of the stomach is one year. The operative mortality is 23 per cent. Exploratory laparotomy presents an average survival period of four months, and gastro-enterostomy, six months; gastric resection has about 30 per cent of survivors three years after the operation. Of great importance for the prognosis is the method of anesthesia employed; local anesthesia gives the best results.

In cancer of the rectum, the operation resorted to is resection by various methods. The best results are obtained by the perineal route, with an abdominal anus (43 per cent of recoveries). There are occasionally survivals of long duration (five, seven and even twenty-four years). At present, it is difficult to decide which is the operation of choice for cancer of the rectum, but the Lockhart-Mummery operation appears to promise rather better results.

A spirited discussion followed the presentation of the papers. Alessandri of Rome referred to his personal series of eleven cases of gastric resection. In ten of the cases he employed local anesthesia and all ten patients are still living. In one case, he used ether anesthesia and the patient died from bronchopulmonitis. Bastianelli of Rome performed gastric resection in 543 cases of cancer of the stomach, and there are 10 per cent of survivors after five years or more. Rossi of Milan holds that the operative technic can be improved. He displayed a type of forceps that he has invented and illustrated by means of slides their use in gastric resection.

A Day Nursery for Weakly Children

The city of Rome has established a day nursery for weakly children at Villa Glori. About 200 children of weakly constitution will be cared for in the nursery from early morning until evening, will be given a nourishing diet, and will be kept in the open air away from the dust of the streets as much as possible. In addition to the rest rooms, there will be places for holding classes, a consultation room for the colony physician, bathrooms and other conveniences. The street car service will be reorganized so as to make it possible to pick up children in the most remote parts of the city and transport them to the day nursery, which has also been styled the prophylactic colony, since it aids in the prophylaxis of tuberculosis.

Tumors of the Spinal Cord

The second main topic, "Tumors of the Spinal Cord," was discussed in collaboration with the Società di medicina interna, and was considered in the account of that meeting.

During the course of the congress, Professor Alessandri held two operative sessions, operating on an ulcer of the lesser curvature by means of pylorogastric resection, followed by the Billroth operation in the Polya modification; on a cancer of the colic flexure, and in a case of cholecystitis and choledochitis of calculous origin. Ethylene anesthesia was used; in Italy this has been employed thus far solely in the Clinica chirurgica in Rome.

Genoa was selected as the meeting place for the next congress, and Professor Tusini, surgical clinician of the University

of Genoa, was elected president. The two main topics chosen for special consideration are (1) the modern problems of anesthesia, with special reference to postoperative complications, and (2) spontaneous gangrene of the limbs, with special reference to endarteritis obliterans. The second topic will be treated in collaboration with the Società di medicina interna.

A New Type of Policlinic

At the instance of prominent industrialists of Latium, a policlinico del lavoro is to be established in Rome. In the new institute, the principal sanitary and aid services, including certain specialties, will furnish free medical care to workingmen and their families, and, in certain instances, even outside of labor circles. In addition, *guardie mediche* will be established in the various industrial districts of Rome.

BERLIN

(From Our Regular Correspondent)

Jan. 5, 1929.

The Lengthened Life of the German Population

The mortality statistics, as set forth in the new German mortuary tables for the years 1924 to 1926, may be regarded as comparatively favorable. The mortality of all age groups, in comparison with the decade 1901-1910, has been greatly diminished. The mortality for the first year of life for the years 1924 to 1926 was 115.4 and 93.9, respectively, per thousand living births (boys and girls), as compared with 202.3 and 170.5, respectively, for the decade 1901 to 1910, and 252.7 and 217.4, respectively, for the period 1871 to 1880. It is evident, therefore, that infant mortality has decreased, since the beginning of the twentieth century, by about 44 per cent, and since the founding of the German reich (1871), by more than 50 per cent. Still greater has been the decline of mortality among young children aged 1 to 5. Of 1,000 children who have withstood the dangers of infancy, 16.2 boys and 14.9 girls die in the second year of life, or only two fifths as many as twenty years ago and only one fourth as many as during the period 1870 to 1880. In the 3 to 6 age group the mortality of boys and girls has dropped to from one fifth to one sixth of what it was formerly. The mortality of 10-year-olds has decreased from 2.4 per thousand, for boys, in the years 1901 to 1910, to 1.4 per thousand, and from 2.6 per thousand, for girls, to 1.2 per thousand. The decrease in the mortality rates for the age groups 15 to 25 has been much less marked. In these age groups, the weakening of the constitution associated with the onset of puberty finds its evident expression in the mortality. For example, the mortality of 20-year-olds (male and female) is at present 4.3 and 3.3, respectively, per thousand, or only about 15 and 21 per cent lower, respectively, than the average for the decade 1901 to 1910. In the next higher age groups, in which the mortality is no longer influenced by the changes in the organism mentioned, the mortality of both sexes, and especially that of the men, has undergone a much greater reduction. Of 1,000 men aged 30, only 4.1 died, as compared with 5.6, the average mortality for the decade 1901 to 1910, and the mortality of men aged 35 and 40 (4.3 and 5.4 per thousand, respectively, in contrast with 7.0 and 9.2, respectively) diminished by about 40 per cent. In the 30 to 35 age groups, particularly, the life of men is now less menaced than in the younger age groups of 20 to 25, whereas formerly, and even during the last prewar years, the deaths among men aged 30 to 40 were much more numerous than among men aged 20 to 30. The mortality of females also has undergone a greater reduction in the middle-age groups than in the juvenile groups. However, the reversal of mortality conditions observed in men in the 20 to 30 age groups as against the 30 to 40 age groups has not as yet been duplicated in women. Chiefly on account of the additional hazard of pregnancies, doubtless, the mortality of women of the 30 to 35 age groups is still much higher than that of the 20 to 30 age groups. The mortality of men of the 45 and the 50 age groups also is about 40 per cent lower, according to the recent tables, than it was according to the tables for the period 1901 to 1910. In the age groups above 50, however, the improvement in the mortality rates become less and less with increasing age. Nevertheless, the attained reduction of the mortality of 70-year-old men and women from 69.4 and 62.1, respectively, to 58.1 and 52.0, respectively, per thousand, and likewise the lowered mortality of 80-year-old men and women, are noteworthy. The marked diminution in the mortality of all age groups results naturally in a considerable lengthening of the life of the population as a whole. Corresponding to the especially marked reduction of mortality in infancy and the early years of childhood, the lengthening of life is most noticeable in the first five years of life. Starting with a given number of new-born (omitting stillbirths), 12 per cent more reach the self-supporting age than in the decade from 1901 to 1910, and even 23 per cent more than under the mortality conditions of the period 1871 to 1880. This increase is of great importance, owing to the fact that it compensates to a great extent for the effects of the marked decline in the birth rate on the productivity of the nation. The increase in the life expectancy of women has the further significance that, under the present mortality conditions, the burden of child bearing is much lighter than it was fifty years ago, or even twenty years ago. According to the mortality conditions of the period 1871 to 1880, the new-born boys reached an average age of 35.6, and, according to the conditions that prevailed during the decade 1901 to 1910, they attained an average age of 44.8. Under the present conditions, however, the average length of life of boys is 56. The entire reduction in mortality brought about since 1870 amounts, therefore, to an average lengthening of the life of new-born boys of 20.4 years. During the same period of fifty years, the life expectancy of new-born girls has increased from 38.5 years to 58.8 years, or a net gain of 20.3 years. In Denmark, England and Wales, Australia and New Zealand, the new-born, chiefly because of a lower infant mortality and a lower mortality of young children, attain, on the average, a still higher age than in the German reich.

The Expenditures of Laborers and Employees for Social Insurance

According to a tabulation recently prepared by Dr. Adametz, formerly *oberregierungsrat,* and Diplomvolkswirt Mössner, employees with incomes up to 3,600 marks ($856) must pay annually for health insurance, unemployment insurance and invalidity insurance the sums noted below:

Annual Income	Insurance Dues	Percentage of Income Paid for Dues
1,800 marks	159 marks	8.83
3,000 marks	249 marks	8.32
3,600 marks	294 marks	8.17

It is apparent, therefore, that the percentage of income paid by employees for social insurance diminishes with the amount of the income. The conditions are similar with respect to the laborers. Their payments, which are based on their wage earnings per hour, are as follows:

Hourly Wage	Annual Income	Percentage of Income Paid for Dues
0.70 mark	1,750 marks	9.01
1.00 mark	2,500 marks	8.30

It would not appear to be a very favorable condition when the higher incomes pay a smaller percentage than the lower incomes.

Marriages

WALTER LAWSON SHACKELFORD, West Palm Beach, Fla., to Miss Annette Laura Parker of Jacksonville, at Miami, Dec. 21, 1928.

JAMES W. TANKERSLEY, Greensboro, N. C., to Miss Nellie Gray Ozment of Guilford College, at Raleigh, Nov. 3, 1928.

VERNON CLARK LASSITER to Miss Mary Dorothea Pfohl, both of Winston-Salem, N. C., Dec. 22, 1928.

FRED D. HEEGLER, San Francisco, to Mrs. Alma G. Nieman, January 12.

RALPH R. SCOBEY, Syracuse, N. Y., to Miss Alice Gilmore, January 1.

Deaths

George Clark Mosher ⊕ Kansas City, Mo.; Kentucky School of Medicine, Louisville, 1882; at various times lecturer and professor of obstetrics, Kansas City (Mo.) Medical College; formerly professor and head of the department of obstetrics, University of Kansas School of Medicine, Kansas City, Kan.; member, past president, vice president and chairman of the committee on maternal welfare of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; past president of the Jackson County Medical Society, Kansas City Medical Milk Commission and the Kansas City Obstetrical Society; member of the tenth International Medical Congress in Berlin in 1890; on the staffs of the Kansas City General, Trinity, Bethany and St. Vincent hospitals and formerly on the staff of St. Margaret's Hospital; was consultant to the Maternity Section of the U. S. Children's Bureau, Washington; on the editorial board of the *American Journal of Obstetrics and Gynecology;* author of monographs and articles, especially on obstetrics, gynecology and anesthetics; aged 70; died, January 18, of acute myelogenous leukemia and Vincent's angina.

Arthur Eugene Ewing ⊕ St. Louis; St. Louis Medical College, 1883; member of the American Academy of Ophthalmology and Oto-Laryngology, and the American Ophthalmological Society; emeritus professor of ophthalmology, and formerly lecturer and clinical professor of ophthalmology, Washington University School of Medicine; author of articles on ophthalmic subjects; co-author of "Optotypes, Test Letters and Pictographs"; aged 73; died, January 26, of cerebral hemorrhage.

John **Mason Hundley,** Baltimore; University of Maryland School of Medicine, Baltimore, 1882; member of the Medical and Chirurgical Faculty of Maryland; emeritus professor of gynecology at his alma mater; on the staffs of the University Hospital, Hospital for Women of Maryland, Maryland General Hospital, and the Home for Incurables, Baltimore, and the Emergency Hospital, Frederick, Md.; aged 70; died, Nov. 3, 1928, at the Union Memorial Hospital.

Zaccheus Roscoe Scott ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1912; member of the Central States Pediatric Society; assistant professor of pediatrics and formerly demonstrator and instructor in pediatrics at his alma mater; served during the World War; on the staffs of the Western Pennsylvania Hospital, Children's Hospital and the Industrial Home for Crippled Children; aged 44; died, Dec. 29, 1928.

C. Gurnee Fellows ⊕ Chicago; Hahnemann Medical College and Hospital, Chicago, 1885; member of the American Academy of Ophthalmology and Oto-Laryngology; at one time professor of ophthalmology and otology at his alma mater; formerly on the staff of the Chicago Memorial Hospital; aged 65; died, February 2, of coronary occlusion and arteriosclerosis.

William Henry Conterman, Central Square, N. Y.; University of Vermont College of Medicine, Burlington, 1886; member of the Medical Society of the State of New York; past president of the Oswego County Medical Society; for twenty-four years president of the board of education; aged 66; died, January 19, of heart disease.

Mary Elizabeth Slattery ⊕ Vineland, N. J.; College of Physicians and Surgeons, Boston, 1907; member of the American Psychiatric Association and the New England Society of Psychiatry; aged 60; on the staff of the New Jersey State Home for Feeble Minded, where she died, January 5, of carcinoma of the pylorus.

Archie Ward Boswell ⊕ Washington, D. C.; Medical Department of Columbian University, Washington, 1894; past president of the Medical Society of the District of Columbia; aged 57; on the staff of the Sibley Hospital, where he died, January 22, of cerebral hemorrhage.

Clifford Stanley Wilmuth ⊕ Mansfield, Ohio; Eclectic Medical Institute, Cincinnati, 1893; served during the World War; formerly on the staff of the Mansfield General Hospital; aged 58; died, in January, at the Lakeside Hospital, Cleveland, of cerebral arteriosclerosis.

Paul Clenton Brittle, Burlington, N. C.; University College of Medicine, Richmond, 1907; member of the Medical Society of the State of North Carolina; aged 49; formerly on the staff of the Rainey Hospital, where he died, January 29, following an operation.

Neil Macphater, Calgary, Alta., Canada; L.R.C.P., Edinburgh, 1881; L.F.P.S., Glasgow, 1881; F.R.C.S., Edinburgh, 1898; formerly professor of anatomy at the New York Post-Graduate Medical School; aged 71; died, Oct. 8, 1928, of chronic myocarditis.

John Cecil Chapman, Colfax, La.; University of Nashville (Tenn.) Medical Department, 1902; served during the World War; formerly coroner of Grant Parish; aged 50; died, January 22, at the Baptist Hospital, Alexandria, of pneumonia, following influenza.

Philo Scott Carpenter, New Albany, Pa.; University of Wooster Medical Department, Cleveland, 1875; member of the Medical Society of the State of Pennsylvania; aged 80; died, Dec. 12, 1928, at the People's Hospital, Sayre, of a fractured hip and shock.

John Louis Borsch, Jr., Paris, France; Jefferson Medical College of Philadelphia, 1893; served during the World War; formerly a practitioner in Philadelphia; on the staff of the American Hospital of Paris; aged 56; died, January 31, of heart disease.

William Edward Young ⊕ New York; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; formerly on the staff of the Broad Street Hospital; aged 51; died, Nov. 27, 1928, at the Fifth Avenue Hospital, of lobar pneumonia.

Webster Calvin, Hollidaysburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 46; died, January 15, of pneumonia.

Thomas L. Magee, San Diego, Calif.; University of Nashville (Tenn.) Medical Department, 1863; member of the California Medical Association; Civil War veteran; formerly city health officer; aged 92; died, January 1, of pneumonia.

Isaac Kelley King ⊕ Mount Oliver, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 59; died, in January, at St. Joseph's Hospital, of meningitis, following mastoiditis, which developed from a furuncle on the ear.

Matthew R. Mitchell, Avon Park, Fla.; Medical College of Ohio, Cincinnati, 1868; member of the Kansas Medical Society; Civil War veteran; at one time member of the state legislature of Kansas; aged 93; died, Dec. 27, 1928.

Max Staehle ⊕ Manitowoc, Wis.; Medical Department of the University of Illinois, Chicago, 1900; city health officer; served during the World War; on the staff of the Holy Family Hospital; aged 59; died, January 8, of appendicitis.

Percy Herbert Brigham, Florence, S. C.; Medical School of Maine, Portland, 1901; health officer of Florence; served during the World War; aged 55; died, January 9, at the home of relatives in New Orleans, of heart disease.

John Henry Reagan, Beaumont, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1892; county health officer; aged 60; died, Oct. 3, 1928, of chronic arthritis and rheumatic myocarditis.

Charles Quincy Nelson, Morgantown, W. Va.; Pulte Medical College, Cincinnati, 1878; aged 73; died, Dec. 26, 1928, at the Highland Park (Mich.) General Hospital, of injuries received when struck by an automobile.

Harvey G. May, Harrisonville, Mo.; Marion-Sims College of Medicine, St. Louis, 1896; member of the Missouri State Medical Association; county health officer; aged 64; died suddenly, January 18, of heart disease.

George M. Barwick, Soperton, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; formerly member of the state legislature; aged 62; died, January 9, of influenza and pleurisy.

Osmon D. Doane, The Dalles, Ore.; Willamette University Medical Department, 1875; Bellevue Hospital Medical College, New York, 1888; aged 77; died, January 7, of dilatation of the heart and influenza.

Charles Bernard Coughlin, Belleville, Ont., Canada; Trinity Medical College, Toronto, 1890; for many years medical superintendent of the Ontario School for the Deaf; died, Dec. 10, 1928, of heart disease.

Marvin Luther Turney, Alpine, Texas; Southern University Medical College, Dallas, 1909; served during the World War; owner of a hospital bearing his name; aged 42; died, January 13, of heart disease.

Alfred Thomas Le Boeuf, Salem, Mass.; Baltimore Medical College, 1908; member of the Massachusetts Medical Society; on the staff of the Salem Hospital; aged 46; died, January 18, of influenza.

William F. Rust, Indianapolis; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1889; aged 64; died, January 18, of chronic myocarditis and pneumonia.

John W. Rollins, Atoka, Okla.; College of Physicians and Surgeons, Dallas, 1907; member of the Oklahoma State Medical Association; aged 66; died, January 4, of pneumonia, following influenza.

Robert Haile Latane, Buchanan, Va.; Medical College of Virginia, Richmond, 1881; member of the Medical Society of Virginia; aged 70; died, January 12, at St. Alban's Sanatorium, Radford.

Robert M. Boyd, Fort William, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1903; health officer of Fort William; aged 51; died, Dec. 2, 1928, of pneumonia.

Benjamin Oscar Coates ⊕ Pasadena, Calif.; Trinity Medical College, Toronto, Ont., Canada, 1892; aged 62; died, in December, 1928, of carcinoma of the breast with metastasis to the cecum.

George S. McDonald, Irvine, Ky.; Louisville Medical College, 1890; member of the Kentucky State Medical Association; aged 60; died, in January, of pneumonia, following paralysis.

Karl Greiner, Sparta, Mich.; Chicago Homeopathic Medical College, 1892; formerly mayor of Sparta; member of the school board; aged 57; died suddenly, January 15, of heart disease.

Albert J. Henderson, Kansas City, Mo.; University Medical College of Kansas City, 1897; aged 56; died, January 3, at the Bell Memorial Hospital, of carcinoma of the esophagus.

John H. Hubbard, Grace, Idaho; Northwestern University Medical School, Chicago, 1906; member of the school board; justice of the peace; aged 61; died, Dec. 5, 1928, of embolism.

William Henry Johnson ⊕ New York; University of Pennsylvania School of Medicine, Philadelphia, 1885; aged 74; died, January 10, of adenoma of the prostate and influenza.

Cadwallader Jones, Charlestown, Ind.; University of Louisville (Ky.) School of Medicine, 1878; health officer of Charlestown; aged 79; died, January 17, of influenza.

William Hewins Thayer, New Bedford, Mass. (licensed, Massachusetts, 1898); on the staff of St. Luke's Hospital; aged 52; died, January 6, of carcinoma of the liver.

Frank William Doyle, Northampton, Mass.; Atlanta School of Medicine, 1912; aged 54; died suddenly, January 17, as he reached the home of a patient in Sunderland.

A. J. Evans, McMechen, W. Va.; Starling Medical College, Columbus, 1885; aged 70; died, January 13, at the Bellaire City (Ohio) Hospital, of cerebral hemorrhage.

Arthur Samuel Henry ⊕ Cleveland; Trinity Medical College, Toronto, Ont., Canada, 1899; aged 55; died, January 13, at the Cleveland Clinic Hospital, of heart disease.

Clarence Merton Humphrey, Akron, Ohio; Western Reserve University School of Medicine, Cleveland, 1882; aged 70; died, January 17, of carcinoma of the liver.

Alfred A. Lewis ⊕ Morristown, N. J.; Medical Department of the University of the City of New York, 1868; aged 82; died, January 1, of carcinoma of the colon.

Clifton C. Laws, Chesapeake City, Md.; University of Maryland School of Medicine, Baltimore, 1895; aged 55; died, January 14, at the Union Hospital, Elkton.

James Henry Anderson, Tarboro, N. C.; Medical Department of the University of the City of New York, 1882; aged 80; died, January 17, of heart disease.

Howard Lincoln Hunt ⊕ Orchard Park, N. Y.; Niagara University Medical Department, Buffalo, 1888; aged 65; died, Dec. 9, 1928, of bronchopneumonia.

William R. Shinn, Portland, Ore.; Rush Medical College, Chicago, 1879; aged 78; died, Dec. 24, 1928, of epithelioma of the mouth and glands of neck.

J. B. Godfrey, Welsh, La.; Louisville (Ky.) Medical College, 1890; member of the Louisiana State Medical Society; aged 73; died, Dec. 17, 1928.

Oliver William Colbeck, Niagara Falls, Ont., Canada; University of Toronto Faculty of Medicine, 1901; aged 50; died suddenly, Dec. 18, 1928.

William B. Way, Ridgeville, S. C.; Medical College of the State of South Carolina, Charleston, 1879; aged 73; died, Dec. 29, 1928, of influenza.

Kimbro Buck Goggans, Hackleburg, Ala.; Memphis (Tenn.) Hospital Medical College, 1893; aged 60; died, Nov. 13, 1928, of heart disease.

William M. Painter, Dalton, Ga.; Chattanooga (Tenn.) Medical College, 1894; aged 60; was killed, Dec. 19, 1928, when struck by a train.

John Kent Lindsey ⊕ Elmore City, Okla.; Memphis (Tenn.) Hospital Medical College, 1898; aged 60; died, January 15, of pneumonia.

Adolph C. Klostermann, Venedy, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1906; aged 48; died, January 20, of pneumonia.

John G. Ross, Winchester, Ind.; Eclectic Medical Institute, Cincinnati, 1872; Civil War veteran; aged 85; died, January 17, of lobar pneumonia.

Walter W. Johnson, Covington, Va.; Leonard Medical School, Raleigh, N. C., 1900; aged 53; died, Dec. 12, 1928, of cerebral hemorrhage.

George Lacy, Medon, Tenn.; University of Louisville (Ky.) School of Medicine, 1870; Confederate veteran; aged 83; died, Dec. 24, 1928.

Sherman Edward Simmons ⊕ Norwalk, Ohio; Pulte Medical College, Cincinnati, 1881; bank president; aged 68; died, Dec. 17, 1928.

James Daniel Higgins, Chicago; Rush Medical College, Chicago, 1893; aged 73; died, January 12, of hemorrhage due to duodenal ulcer.

Samuel Sheldon, Trenton, Mo.; University Medical College of Kansas City, 1900; aged 55; died suddenly, Dec. 11, 1928, of heart disease.

Arthur Wright McClave, Boise, Idaho; Northwestern University Medical School, Chicago, 1900; aged 57; died, Dec. 20, 1928.

Frederick E. Woolsey, Plainwell, Mich.; University of Michigan Medical School, Ann Arbor, 1881; aged 78; died, Dec. 30, 1928.

Louis Arthur Merritt, Alhambra, Calif.; Medical School of Maine, Portland, 1893; aged 64; died, Dec. 30, 1928, of heart disease.

Thomas McGuire Shay ⊕ Boston; Harvard University Medical School, Boston, 1889; aged 67; died, January 11, of pneumonia.

Charles Wesley Puntney, Carmi, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1893; aged 71; died, Dec. 29, 1928.

Joseph Virgil Grahek ⊕ Pittsburgh; Northwestern University Medical School, Chicago, 1907; aged 44; died, Dec. 27, 1928.

John S. Beaudry, Chicago; Bellevue Hospital Medical College, New York, 1887; aged 64; died, January 23, of myocarditis.

Hoyt Larch, Athens, Ohio; Chicago Physio Medical College, 1891; aged 59; died, January 4, of cerebral hemorrhage.

John C. Stephenson, Apopka, Fla.; Medical College of Indiana, Indianapolis, 1889; aged 65; died, Dec. 31, 1928.

Peter L. Graham, Lobo, Ont., Canada; Trinity Medical College, Toronto, 1877; aged 83; died, Nov. 4, 1928.

Frederick P. Nisbet, Atlanta, Ga.; Southern Medical College, Atlanta, 1894; aged 64; died, Dec. 26, 1928.

J. H. Cole, Tylertown, Miss. (licensed, Mississippi, 1882); aged 92; died, Dec. 17, 1928, at Jackson.

John S. McMurtrey, Rison, Ark. (licensed, Arkansas, 1903); aged 74; died, Dec. 23, 1928.

CORRECTION

Civil War Veteran.—The obituary of the late Dr. Abner H. Shaffer, Huntington, Ind., published February 2, stated that he was a Confederate Veteran. Dr. Shaffer served during the Civil War with the Seventy-Fifth Indiana Volunteer Infantry.

Bureau of Investigation

THE CASE OF ROBERT THOMPSON

The Criminal Career of an Abortionist

On January 19, 1929, Robert Thompson, who holds a diploma from the Baltimore Medical College, 1895, was sentenced in Special Sessions Court, New York City, to one year in the penitentiary and the payment of a fine of $500. This is the latest prison record of a man whose career during the last quarter of a century has been one that casts almost as much reflection on the state—using the word state in its broader sense—as it does on the individual. Robert Thompson was born in New Hampshire in 1873 of a respected New England family. He is known to the police from the Atlantic to the Pacific under at least half a dozen aliases: "Dr. James Grant," "Dr. J. H. Roberts," "Mrs. Dr. Roberts," "Dr. Stanton A. Hudson," "Dr. Robert Malcolm," etc.

In 1903 Thompson was living in Boston and is said to have maintained an office where, according to the police, he carried on illegal operations under the name of "Dr. J. H. Roberts." At the same time Thompson was furnishing money and brains to a group of counterfeiters that were flooding the country with spurious five, ten and twenty-dollar bills. As a result he was convicted in 1905 of making and passing counterfeit money. He appealed and was allowed his freedom under $5,000 bail, on condition that he report every alternate day at the United States Marshal's office. Before long he was again in trouble, for his French Medical Company, which is said to have been an abortion mill, was investigated by the Post Office Department and the "noted French specialist" behind the concern was found to be Thompson, who worked under various aliases. Before the French Medical Company's case came to trial, the United States Court of Appeals had sustained the sentence of the lower court in the counterfeiting case and Thompson went to Atlanta. Through the efforts of his relatives the Department of Justice was petitioned and, early in 1908, President Taft paroled the man.

In 1910, under the alias "Dr. James Grant," Thompson was running an abortion mill in San Francisco. One of his victims, a young girl, died in Thompson's "sanatorium." Thompson cut up the body, transported it in a trunk, and buried it in the basement of a cottage that he had rented for that purpose, after pouring acid over the remains. As a result, Thompson was indicted for murder, convicted, and sentenced to twenty years in San Quentin Prison. He served nine years of this sentence and was then paroled to the custody of his father in September, 1919.

He went back again to Boston where once more he established an abortion business, practicing under the alias "Stanton A. Hudson." In August, 1922, he was arrested on the charge of procuring an abortion, but was discharged. In December of the same year he was sentenced to three months in jail on the charge of violating the state medical practice act. In February, 1923, he was again rearrested, charged with advising and prescribing instruments to procure abortion, but was not convicted.

Thompson then went to New York City and established himself at 114 West Seventy-First Street, a location long occupied by one Dr. Alder C. Muttart. Muttart himself is said to have been indicted for abortion, but no convictions were secured. In September, 1927, Thompson, who was practicing under the name of "Robert Malcolm," was charged with attempted abortion and the possession of narcotics. The case was dismissed by a local magistrate and Thompson is said to have boasted openly that he could beat any police case because he had the "pull." Finally, one of New York's tabloid newspapers—the *Daily News*—turned one of its reporters loose on the Thompson case and, with the aid of the publicity thus given, plus the activities of the chief of the legal bureau of the Department of Health of the City of New York—Dr. S. Dana Hubbard—and the Assistant District Attorney, Michael A. Ford, finally brought Thompson to trial with the result already related.

From the testimony in the present case it appears that Thompson saw about thirty patients a week and that he had nine cots in his institution, where women stayed overnight following the insertion of a catheter into the uterus, a curettage being done on the following morning.

There was a medico-economic aspect to the case, which led one to hope that Thompson would turn state's evidence and reveal his association with other members of the medical profession. It is reported that Thompson employed a young physician whom he furnished with an automobile, and whose business it was to solicit abortions from other physicians by personal visits as a "detail man." Dr. Hubbard reports that the authorities hold a number of checks for amounts paid by Thompson as commission to some fifty or sixty physicians in the Greater New York area.

It was also brought out during the investigation that there was some relation between Thompson and a private sanatorium, the connecting link, apparently, being the finding of narcotics that had been improperly obtained by the purchasing agent of the sanatorium, the narcotics in question being transferred to Thompson for his own use. The particular drugs seem to have been the "H. M. C." tablets. This phase of the case, it is said, is now before the federal authorities, with the likelihood of further details being brought out later.

Putting aside the purely medical aspects of the case, the outstanding thing that must strike every good citizen in this recital of sordid facts is the failure on the part of the forces of law and order properly to control an individual whose record for a quarter of a century has been one of major crime. Next to this, the recital brings out the further fact—more encouraging—that publicity, when backed with action of officials who are persistent and incorruptible, can bring the most insolent and self-confident criminal to justice.

Correspondence

WEIGHT REDUCTION AND CANDY

To the Editor:—In the *Saturday Evening Post* of January 19 there appeared an advertisement, sponsored by the Research Department of the National Confectioners' Association, in which the qualities of candy were praised by use of the oft-quoted phrase "fats burn in the flame of the carbohydrates." This expression, ordinarily used to describe picturesquely an interrelationship in the intermediary metabolism of dextrose and fatty acids, was here employed to indicate that it was a scientific warrant for their contention that "a diet high in sugars (such as candy) may be very effectively used by people with a tendency to overweight, in helping them to 'get thin.'"

The phrase "fats burn in the flame of the carbohydrates" is followed by an asterisk. Farther down there is the headline "How to Reduce Comfortably on Candy," likewise followed by an asterisk. The asterisks refer to my textbook.

Neither was the specific reference to my textbook authorized by me nor have the implications, so far as I know, adequate clinical or scientific basis. It appears to me, therefore, that such use of scientific references is objectionable.

MEYER BODANSKY, PH.D., Galveston, Texas.

BENJAMIN FRANKLIN'S EXPERIMENT ON "WATER RETENTION"

To the Editor:—In your editorial on Water, Edema and Weather you refer to Dr. Smith's report on "Water Retention." Es gibt nichts Neues auf der Welt! In 1761, Benjamin Franklin wrote a letter to Mary Stevenson in which he said "I have read of a man, hired by a physician, who stood, by way of experiment, in the open air, naked, during a moist night. In the morning he weighed near 3 pounds heavier." If this is new to you and probably it is not, you can find it in Pepper's "The Medical Side of Benjamin Franklin," page 40.

LESTER E. FRANKENTHAL, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSSIBLE USE OF RECTAL ANESTHESIA IN PRESENCE OF BRONCHITIS

To the Editor:—Is the Gwathmey method of rectal analgesia contraindicated in upper respiratory infections, such as bronchitis and coughs? Please omit name.

M.D., North Dakota.

ANSWER.—Authorities quite generally agree that if ether affects the respiratory tract it must do so by direct contact with the epithelium, which would be possible only by inhalation of the vapor. When it is administered by rectum it reaches the lungs through the blood stream in a dilute form and consequently it is reasonable to suppose that it would be less injurious. However, the safer plan is to avoid ether and administer gas (ethylene or nitrous oxide), especially in acute infections.

TREAMENT OF CONVULSIONS IN INFANCY

To the Editor:—In prolonged convulsions in infancy and childhood why would not spinal puncture be considered good treatment? Is the use of morphine better than that of the bromides and chloral hydrate?

J. A. BOYLE, M.D., New York.

ANSWER.—Spinal puncture is good treatment and may be repeated every day or two, especially if the fluid pressure is increased. Bromides and chloral should be preferred to morphine. In a severe case, with status epilepticus, intravenous injections of phenobarbital sodium may be indicated.

POSTOPERATIVE IRRADIATION AFTER SURGICAL REMOVAL OF CANCER OF THE BREAST

To the Editor:—Kindly let me know the present status of postoperative treatment of cancer of the breast when a radical removal has been done (the axillary glands are involved). Are there contraindications to the use of roentgen rays postoperatively in these cases? If roentgen rays are used postoperatively, how long should the treatments be continued and how often should they be given? Are there known cases of cures, and what period must elapse before a cure can be pronounced with a reasonable margin of safety? Please omit my name.

M.D., New York.

ANSWER.—Surgeons and roentgen-ray experts vary considerably in their opinions relative to the value of postoperative irradiation. It is probably best to irradiate nearly all patients as a routine; at least two or three series of treatments should be given. High voltage roentgen therapy with a powerful machine is essential. The amount of irradiation should be determined by a roentgenologist working in conjunction with a clinician.

DRINKING AND EXPULSION OF LARGE QUANTITIES OF WATER

To the Editor:—January 6, at the Venetian Theater in Racine, Wis., I saw an unusual performance by a man calling himself Hadji Ali. He claimed that he was able to drink 3 gallons of water. I was sitting close to him and saw him drink 6 quarts. He was then able, while in an erect position, to expel all the water forcibly and without any apparent effort for a distance of from 4 to 6 feet. Purely from a scientific point of view, I should be glad to hear any explanation of this unusual stomach phenomenon, and ask whether you can offer one.

R. C. THACKERY, M.D., Racine, Wis.

ANSWER.—Swallowed water that can be returned by mouth is probably all held in the stomach and the esophagus. Water that has already entered the small intestine can probably not be returned with the same ease as that in the stomach and esophagus. The amount of water that may be held in the stomach and esophagus depends on the degree of dilatation of these organs. The retention of three gallons of water would be an extremely pathologic dilatation of the stomach and esophagus even in a large person. The performance described cannot be performed by a normal person and it is doubtful whether, even starting in childhood, a normal person could be trained to this feat. The performer may have congenital anomalies of the upper alimentary tract as its base. It is known, of course, that rumination or voluntary return of gastric content can be imitated or learned in childhood. The act described requires apparently an extremely dilated stomach, a more or less permanently patent cardiac sphincter, and at least a moderate tone of the pyloric sphincter, so that when the abdominal muscles contract forcibly and exert pressure on the stomach the water will be ejected rather than pass into the small intestine. A normal person has no voluntary control of these portions of the alimentary canal. If the performer was available for fluoroscopic observation the whole mechanism concerned might be cleared up. In this case it is more likely that the water was retained in the stomach rather than in the dilated esophagus. Voluntary expulsion of fluid from the dilated esophagus is more difficult than expulsion of fluid in the stomach, provided the cardia is dilated.

DIPHTHERIA AFTER SLIGHTLY POSITIVE SCHICK TEST

To the Editor:—I should like an explanation of the following unusual circumstance. Sept. 27, 1928, I began a course of toxin-antitoxin injections in a boy, aged 17 months, using each time 1 cc. Three injections were given a week apart, the last one, November 11. December 11, the boy was given the Schick test, which proved negative thirty-six hours later. On this date the mother called my attention to the baby's throat, which on examination showed a mild inflammation of the tonsils with a slight exudate. The tonsils were swabbed with 20 per cent silver nitrate solution. The next day the exudate had formed a definite membrane, not large, the tonsils were not greatly swollen, and the child did not seem ill. However, as a precaution I took a culture, which much to my surprise was reported positive after eighteen hours for the Klebs-Loeffler bacillus. I gave the child 5,010 units of antitoxin. In the large series of cases reported by W. H. Parks there was a negative reaction to the Schick test in 97 per cent two months after the third injection of toxin-antitoxin. I obtained a negative Schick test after two months, and two days later the child developed mild diphtheria. The Schick solution had been prepared by dilution about ten days previous to the test and had been kept in the ice chest. It was given intradermally in amounts sufficient to produce a wheal about the circumference of a lead pencil. The zone of erythema after thirty-six hours was less than the size of a dime. This experience of mine seems quite different from that reported by every author whom I have consulted. Perhaps two months is not long enough to establish a complete immunity after toxin-antitoxin, but, if not, why the negative Schick test; and if the Schick test was negative, why did the child develop diphtheria?

CHARLES A. WYLIE, M.D., San Bernardino, Calif.

ANSWER.—The presence of a zone of erythema after thirty-six hours indicates a slightly positive Schick test. As the solution for the Schick test had been prepared ten days previously, it is possible that the toxin in the solution might have undergone some deterioration. It is always best to prepare the solution for the Schick test as shortly as possible before the test is to be made. That the child had a mild attack of diphtheria is altogether in harmony with the slightly positive Schick test.

PRESCRIPTION FOR COUGH

To the Editor:—Kindly criticize the following prescription for cough in adult:

		Gm. or Cc.
℞	Calcium iodized	1.5
	Ammonium chloride	7.0
	Morphine sulphate	0.045
	Elixir elegans, q. s.	ad 100.00

M. Sig. Teaspoonful every three or four hours for cough.

J. B. H. WARING, M.D., Wilmington, Ohio.

ANSWER.—The prescription as it stands could probably not be compounded by the average pharmacist by reason of the fact that no formula can be found for "elixir elegans" in any of the available formularies. Iodized calcium is also not recognized in formularies or the pharmacopeia. Iodized lime is an indefinite mixture generally made by mixing iodine and calcium oxide. It contains calcium iodide, calcium iodate and free iodine in variable proportions. In addition to its indefinite composition this "iodized calcium" is unstable in solution and also incompatible with the morphine contained in the prescription. The presence of the opiate in a cough remedy might be criticized on the general principle that practically all coughs are useful and that suppression of the cough is liable to produce a deceptive temporary improvement with aggravation of the condition because of retention of infected discharge that would otherwise have been eliminated, and it is a reasonable supposition that even bronchopneumonia might be caused by retention of the discharge causing blocking up of the bronchioles with ensuing consolidation.

If the expectorant action of ammonium chloride and of iodide is desired and the antitussic effect of morphine is unobjectionable in a particular case, the following prescription might be suggested, which could be compounded by the pharmacist:

		Gm. or Cc.
℞	Calcium iodide	1.5
	Ammonium chloride	7.0
	Morphine hydrochloride	0.045
	Aromatic elixir	to make 100.0

Mix and label: One teaspoonful in water every three or four hours as required for cough.

USE OF SILVER NITRATE ON FISSURE OF NIPPLE AND ON UMBILICAL CORD

To the Editor:—Do you believe the remedies for the following conditions to be good treatment: 1. The use of silver nitrate stick for fissured nipples in the postpartum period. What danger of poisoning to the new-born is there in its use? 2. Alcohol applied to the umbilical cord before its separation after birth. 3. Silver nitrate applied to granulations (proud flesh) after the cord has separated. Kindly omit name.

M.D., Brooklyn.

ANSWER.—1. Silver nitrate is a commonly used remedy for fissured nipples and has proved satisfactory. There is practically no danger of poisoning to the new-born, especially if the nipple is washed with boric acid before the baby is placed to the breast.

2. This is good treatment; some believe the application of mercurochrome-220 soluble to be more efficient.

3. This is an old established treatment and is helpful, especially if the silver nitrate stick is used.

CARCINOMA OF UTERUS—SWELLING OF SKIN IN AGED—COMMUNICABILITY OF SYPHILIS—MULTIPLE NEURITIS

To the Editor:—1. What is the frequency and usual place of recurrence of carcinoma of the body of the uterus after panhysterectomy performed before invasion of the adjacent structures? 2. What is the possible cause of swelling of the hands, lower limbs and skin of the face and chest in a woman, aged 60? The gallbladder and appendix were removed in July. There had been no previous trouble of this nature, and the patient made a good postoperative recovery. The swelling is extreme, and is not affected by ordinary activity. It does not pit, save on hard pressure. The skin is shiny and smooth, and the circulation in the skin is sluggish. There is no pain, but the patient is unable to use the fingers on account of swelling. Careful physical examination and functional tests do not show any abnormality of either the circulatory or the renal systems. There is no ascites, and no swelling of the skin over the body. The patient feels well and wishes to be active, but is inconvenienced greatly by this trouble. She has never lived south of this place (Sanibel, Fla.). Various tests for foreign protein are negative. A salt-free diet did not induce any change. Might deficiency of thyroid function play a part; if so, what suggestions for treatment can you offer? 3. Is inherited syphilis communicable? 4. Have you any suggestions for the relief of pain and sensitiveness of the hands in multiple neuritis?

LOUIS M. PERRY, M.D., Sanibel, Fla.

ANSWER.—1. Recurrence after panhysterectomy for carcinoma of the body of the uterus may take place locally, in the lymphatic glands or by metastasis to some remote organ or part. By far the most frequent recurrence is locally, undoubtedly because of failure to remove all of the carcinomatous tissue. In other words, minute cancerous foci were already present beyond the body of the uterus itself. The next most frequent place of recurrence is the lymphatic glands. If the carcinoma involves only the body of the uterus, the glands most commonly affected are the lumbar lymphatics. If the carcinoma involves the cornua of the uterus, the lymphatics involved are usually the inguinal glands by extension along the round ligament. While true metastases have occasionally been found in the lungs, liver and elsewhere, such metastases are very rare. For instance, Winter, in forty-four autopsies performed on women who died from a recurrence after total extirpation of the uterus, did not find a single metastasis. In 202 women who died from recurrence after operations for carcinoma, metastases were found in only nine, or 2.5 per cent.

2. The patient may have either a myxedema or an unusual type of persistent angioneurotic edema. The basal metabolism should be taken if possible. It is permissible to start the use of thyroid in any event, keeping the patient under frequent observation. One tablet containing one-half grain (0.03 Gm.) may be given daily, the dose being either increased or decreased as seems advisable. Spontaneous myxedema after the age of 50 or 60 years is not unknown. It is probable, if myxedema is present, that small doses of thyroid will be constantly necessary in the future. It is interesting to speculate as to whether the cholecystectomy may have had something to do with the onset of the condition, such as disturbing the endocrine glands in some way. In case there is neither myxedema nor a decreased metabolic rate, and the condition proves to be an angioneurotic edema, thyroid administration will probably not do any good. The chronic cases of this type resemble somewhat Raynaud's disease, since in a cold climate the fingers blanch on exposure to cold and become colorless for some time. There seems to be no remedy for this type of edema. Apparently, the symptoms remain stationary for years without evidence of visceral disease.

3. When hereditary syphilis develops early in infancy and runs an acute course with active lesions, such as mucous patches in the mouth and about the genitals, and bullous and other eruptions on the skin, it is highly contagious, just as contagious as the similar acute lesions in acquired syphilis. After the syphilis passes this acute stage, whether it is inherited or acquired, and its manifestations consist only of the late, so-called tertiary, gummatous lesions, their contagiousness is so slight as almost to be nil. For all practical purposes it may be said that these late lesions of syphilis are not contagious. Cases of hereditary syphilis showing only the late indolent manifestations come within the category of virtually noncontagious cases. With regard to the transmission of hereditary syphilis to the second generation there is the same situation: A person with hereditary syphilis old enough to have children has, of course, a very old syphilis and it may be said that transmission of hereditary syphilis by a person with hereditary syphilis to his children does not occur. What may be called the alarmist school of syphilologists at present claims that hereditary syphilis is occasionally transmitted to the next generation. If such transmission occurs, it is so rare as to be practically negligible.

4. The hands should be protected from irritation by some bland ointment and wrapping in cotton. When there are no contraindications, coal tar derivatives will often give some relief. A gentle galvanic current applied with the hands in water may also be found of service.

POSSIBLE CARCINOMA SIMPLEX OF LYMPH NODES?

To the Editor:—We have had recently two cases of swollen lymph nodes of the neck near the angle of the jaw. Histologic examination showed in both cases "carcinoma simplex." The diagnosis was made by our pathologist and confirmed in different departments of pathology of medical schools. After removal of as much of the tumor as possible and extensive roentgen treatment, both patients made a good recovery. There were no other lymph nodes enlarged and in neither case were we able to find the "primary" tumor, taking it for granted that a carcinoma simplex of a lymph gland is always "secondary." Is there a "primary" cancer of the lymph node or, if that is not the case, what would be a possible explanation? Please omit name.

M.D., Illinois.

ANSWER.—Primary "carcinoma simplex" can hardly be conceived as occurring in lymph nodes, and accordingly the most reasonable explanation of the cases cited would seem to be either that the primary carcinoma has not been detected (the inquirer does not state the time that has elapsed since the operations) or that it may have concerned some other form of tumor, for instance, the so-called mixed tumor of salivary glands.

THERAPEUTIC ABORTION

To the Editor:—What are the requirements of members of the Association relative to therapeutic abortions? Also what are the requirements of accepted hospitals before an abortion should be permitted to be done in the hospital? Please do not publish my name.

M.D., Kansas.

ANSWER.—Therapeutic abortions are regulated in some states by statutes. In other states the statutes are silent. Where statutes are in force, strict compliance is necessary. Generally they tolerate a therapeutic aboration only when the operation is necessary to preserve the life of the mother from some impending danger. The danger must be real; the bare possibility of death is not sufficient. In some statutes it is provided that, before an abortion can be lawfully induced, two or more physicians must agree that it is necessary. Even in states where there is no statute to guide him, a physician will do well to conform to the principles stated. A physician who induces an abortion to preserve only the health of the mother, as distinguished from her life, in a state where the statute tolerates such operations only when they are necessary to preserve life, will probably find it impossible to justify his course legally, and even in the absence of a statute it will be difficult or even impossible for him to do so. Under no conditions can an abortion be lawfully induced for the sole purpose of preserving a woman's reputation, or of contributing to her comfort or pleasure, or because of the patient's financial circumstances. Consultants should be selected who are of good repute and not biased by personal or professional relations with the case. The patient and her husband, and, if she is an unmarried minor, her parents or guardian, should be fully informed concerning the situation by the attending physician, preferably in the presence of a consultant. If the operation may run counter to the religious faith of the patient, it will be desirable to make that fact clear to her, so that she may make an intelligent choice. The justification for the operation should clearly appear in the case history. The written consent of the husband and wife should be obtained before the operation is done, or, if the patient is an unmarried minor, the written consent of her parents or guardian. Responsible officers of hospitals should see that the laws relating to therapeutic abortions are fully complied with before they permit such operations to be done in institutions under their care.

BURNS FROM KEROSENE AND GASOLINE

To the Editor:—Are there any distinguishing indications on the flesh between gasoline and kerosene burns? Explain the distinctions, if any, whereby one could determine from the appearance and conditions whether a burn on the abdomen, chest or arms was caused by gasoline or by kerosene combustion. J. E. HAMNER, M.D., Rainelle, W. Va.

ANSWER.—It is the general impression that burns from kerosene are much more severe than those from gasoline, and that there is more superficial blackening of the skin. With the body clothed and the clothing saturated, the burns are always more severe.

ALKALOSIS

To the Editor:—What are the symptoms of poisoning from taking large amounts of alkalis (as recommended by Dr. Sippy in his treatment of ulcers) for a number of years? Do not use my name. M.D., Iowa.

ANSWER.—The early symptoms of alkalosis following the ingestion of large amounts of alkalis, as recommended by Sippy in his treatment for ulcer, are nausea and distaste for food. Later there is a slight headache, which becomes more severe. Then there is a restlessness and nervousness, and finally vomiting may suprevene. Still later, if the alkalis are kept up, there is a beginning edema and a delirium, which resembles an alcoholic delirium. The blood pressure as a rule is not elevated. The urine becomes distinctly alkaline, with large amounts of albumin. The blood shows evidence of a very definite increase in the carbon dioxide combining power, with the hydrogen ion reading tending toward a definite alkalinity. The blood chlorides show some diminution and there may be an increase in the nonprotein nitrogen and urea. The more severe the alkalosis, the more pronounced are these symptoms, and it is not wise to continue giving much alkali in the form recommended in the Sippy management when the carbon dioxide combining power goes above 65. No treatment is given, as it is not called for.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 5, 1929. Sec., Dr. Harry C. DeVighne, Territorial Medical Examining Board, Juneau, Alaska.

CALIFORNIA—Reciprocity: San Francisco, March 13, 1929. Sec., Dr. Charles B. Pinkham, Board of Medical Examiners, 420 State Building, Sacramento, Calif.

CONNECTICUT—Homeopathic: New Haven, March 12, 1929. Sec., Dr. Edwin C. M. Hall, Homeo. Medical Examining Board, New Haven, Conn.

IDAHO: Boise, April 2, 1929. Hon. Fred. E. Lukens, Commissioner of Law Enforcement, Medical Examining Board, Boise, Idaho.

MAINE: Portland, March 12-13, 1929. Sec., Dr. Adam P. Leighton, Board of Registration of Medicine, 192 State House, Portland, Me.

MASSACHUSETTS: Boston, March 12-14, 1929. Sec., Dr. Frank M. Vaughan, Board of Registration in Medicine, 144 State House, Boston, Mass.

MINNESOTA—Basic Science: Minneapolis, April 2, 1929. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis.

MONTANA: Helena, April 2, 1929. Sec., Dr. S. A. Cooney, State Capitol Building, Helena, Mont.

NEW HAMPSHIRE: Concord, March 14-15, 1929. Sec., Dr. Charles Duncan, State Medical Board, State House, Concord, N. H.

OKLAHOMA: Shawnee, March 12-13, 1929. Sec., Dr. J. M. Byrum, Board of Medical Examiners, Shawnee, Okla.

PHILIPPINE ISLANDS: Manila, March 5, 1929. Sec., Dr. Jose V. Gloria, Board of Medical Examiners, 341 Ronquilla Sta., Cruz, Manila, Philippine Islands.

PORTO RICO: San Juan, March 5, 1929. Sec., Dr. Diego A. Biascoechea, Board of Medical Examiners, 3 Allen Street, San Juan, Porto Rico.

WEST VIRGINIA: Charleston, March 5, 1929. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

California September-November Reciprocity Report

Dr. Charles B. Pinkham, secretary of the California State Board of Medical Examiners, reports 39 physicians licensed through reciprocity with other states as of September-November, 1928. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1927)	Colorado
Yale University School of Medicine		(1911)	New York
Georgetown University School of Medicine		(1919)	Illinois
Rush Medical College		(1903), (1920)	Illinois
General Medical College, Chicago		(1924)	Idaho
University of Illinois College of Med.		(1919) Illinois, (1927)	Oklahoma
Chicago College of Medicine and Surgery		(1917)	Montana
University of Louisville School of Medicine		(1927)	Kentucky
University of Maryland School of Medicine and the College of Physicians and Surgeons		(1926)	Maryland
Johns Hopkins University School of Medicine		(1918)	Ohio
Harvard University Medical School		(1921) (1923) New York, (1924) Texas	Oregon
Tufts College Medical School		(1922) Rhode Island, (1926)	New York
Detroit College of Medicine and Surgery		(1922)	Michigan
University of Minnesota Medical School		(1924)	Penna.
Washington Univ. School of Med.		(1924), (1926), (1927)	Missouri
St. Louis University School of Medicine		(1906)	Idaho
University of Nebraska Coll. of Med.		(1923), (1925), (1927)	Nebraska
Creighton University School of Medicine		(1926)	Nebraska
University of Buffalo School of Medicine		(1919)	New York
New York Homeopathic Medical College and Flower Hospital		(1899), (1909)	New York
Western Reserve University School of Medicine		(1920)	Ohio
University of Cincinnati College of Medicine		(1927)	Ohio
Univ. of Pennsylvania School of Med.		(1919) Idaho, (1921)	Utah
Jefferson Medical College of Philadelphia		(1925)	Penna.
Medical College of the State of South Carolina		(1919)	Washington
Baylor University College of Medicine		(1927)	Texas
Medical College of Virginia		(1917)	Utah
University of Toronto Faculty of Medicine		(1923)	New York

Rhode Island July Examination

Dr. Byron U. Richards, secretary of the Rhode Island State Board of Health, reports the written and practical examination held at Providence, July 5-6, 1928. The examination covered seven subjects and included 70 questions. An average of 80 per cent was required to pass. Of the 10 candidates examined, nine passed and one failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1927)	84.2
Harvard University Medical School		(1927)	88.7
Boston University School of Medicine		(1927)	89.2
Tufts College Med. School		(1908), 86.0, (1926) 83.3, (1927)	90.9
Hahnemann Med. Coll. and Hosp. of Phila., Homeo.		(1927)	87.5
University of Vermont College of Medicine		(1908)	88.1
University of Naples, Italy		(1922)	80.0
	FAILED		
University of Montreal Faculty of Medicine		(1927)	64.7

Nebraska November Examination

Mr. Lincoln Frost, secretary of the Bureau of Examining Boards of Nebraska, reports the written examination held at Lincoln, Nov. 26-28, 1928. The examination covered 10 subjects. An average of 75 per cent was required to pass. Of the six candidates examined, four passed and two failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Washington University School of Medicine		(1925)	80.3
Creighton University School of Medicine		(1927)	83.4
Long Island College Hospital		(1928)	85.1
University of Vermont College of Medicine		(1927)	80.3
	FAILED		
University of Nebraska College of Medicine		(1928)	73.1, 79.1

Missouri October Examination

Dr. James Stewart, secretary of the Missouri State Board of Health, reports the written examination held at St. Louis, Oct. 23-25, 1928. The examination covered 14 subjects and included 101 questions. An average of 75 per cent was required to pass. Of the 18 candidates examined, 17 passed and one failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Howard University School of Medicine		(1926)	82
Washington University School of Medicine		(1927) (1928) 78, 81, 83, 84, 84, 84, 86	80, 88,
St. Louis University School of Medicine		(1928)	80, 82
University of Oregon Medical School		(1928)	81
Jefferson Medical College of Philadelphia		(1928)	83
University of Virginia Department of Medicine		(1928)	90
University of Wisconsin Medical School		(1928)	82
University of Manitoba Faculty of Medicine		(1926)	89
	FAILED		
Dragomanov Institute, Russia		(1922)*	54

* Verification of graduation in process.

Book Notices

RÉVISION DE LA DOCTRINE DES LOCALISATIONS CÉRÉBRALES UNITÉ SEGMENTAIRE DES RÉFLEXES. Par R. Brugia, professeur (libre) de l'Université de Bologne. Préface du Professeur Pierre Marie. Paper. Price, 24 francs. Pp. 195. Paris: Masson & Cie, 1929.

In this quixotic book the author amuses himself immensely by tilting at windmills. When he makes such statements as that "in laboratories given to the cult of scientific truth, prevailed and still prevails the conception of ganglion cells with specific independent energies, and of nuclei which think and choose with the aptitude of divine spirits" he shows himself to be as out of touch with his environment as Don Quixote. This windmill he destroys in 195 pages by showing that the fundamenal activity of the organism both nervous and mental is the reflex (taught by Janet since twenty years), that the nervous system functions segmentally and that the suprasegmental parts serve only to control and coordinate this activity (a fundamental conception of English neurology since Hughlings Jackson), that there are no centers for language (demonstrated long ago by Pierre Marie), and that there are no centers for will or for intelligence (the faculty psychology has long since been discredited). Such a book might have been useful twenty-five years ago. Today most of the author's contentions are the common conceptions of every neurologist. The fact on which the old theory of centers was based still remains; namely, that lesions in certain definite areas of the central nervous system give origin to definite and often specific alterations of activity.

ORGANIC LABORATORY METHODS. By the late Professor Lassar-Cohn. Translated by Ralph E. Oesper, Ph.D., Associate Professor of Analytical Chemistry in the University of Cincinnati. Edited by Roger Adams, Director of Chemistry Laboratory, University of Illinois, and Hans T. Clarke, Eastman Kodak Company. Fifth edition. Cloth. Price, $6.50. Pp. 469, with 186 illustrations. Baltimore: Williams & Wilkins Company, 1928.

This is the translation of the first volume of the fifth edition of Lassar-Cohn's Arbeitsmethoden für Organisch-Chemische Laboratorien. The book is essentially what its title indicates. It discusses a wide range of laboratory procedures and includes many niceties of laboratory technic. The volume will be of value to the organic chemist who is synthesizing purifying and identifying compounds rather than to the individual whose problem it is to analyze any given material. The last chapter deals with ultimate analytic methods. There are no procedures described for the analysis of mixtures. A complete and handy bibliography increases the value of the book.

HANDBUCH DER GEISTESKRANKHEITEN. Herausgegeben von Oswald Bumke. Band VII: Spezieller Teil. Teil 3: Die exogenen Reaktionsformen und die organischen Psychosen. Von G. Ewald, F. Meggendorfer, B. Pfeifer, usw., usw. Paper. Price, 66 marks. Pp. 700, with 74 illustrations. Berlin: Julius Springer, 1928.

This portion of the monumental work edited by Bumke deals with the exogenous reaction forms and the organic psychoses. The work, which is extremely well organized and amply illustrated, completely states the present knowledge of the subject. No neuropsychiatrist should be without this handbook.

ALLEN'S COMMERCIAL ORGANIC ANALYSIS. A Treatise on the Properties, Modes of Analysis, and Proximate Analytical Examination of the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, etc., with Concise Methods for the Detection and Estimation of Their Impurities, Adulterations, and Products of Decomposition. Volume VI. Colorimetry, Dyes and Colouring Matters, the Synthetic Dyestuffs, and the Analysis of Colouring Matters. Edited by Samuel S. Sadtler, S. B., Elbert C. Lathrop, A.B., Ph.D., and C. Ainsworth Mitchell, M.A., F.I.C. Fifth edition. Cloth. Price, $7.50. Pp. 658, with illustrations. Philadelphia: P. Blakiston's Son & Company, 1928.

This volume contains four articles by four different authors. The articles are related in different ways to the analysis of dyes. Two of these articles with their accompaying tables occupy most of the volume. One is concerned with the identification of dyes by their chemical and physical properties; the other, by identifying the groups from which the dyes are made. One of the shorter chapters considers the various phases of colorimetry and the other treats briefly of the methods used in identifying the dyes in dyed products and the quantitative analysis of dyestuffs. In the chapters in which there are tables, the authors refer to Schultz's "Farbstofftabellen" and to the "Colour Index." One cannot say that any single volume covers the dye field; as far as this particular volume is concerned, it is a valuable addition to the literature now available and should be of service to manufacturers of dyes as well as to analytic and consulting chemists.

THE PROBLEM CHILD AT HOME. A Study in Parent-Child Relationships. By Mary Buell Sayles. Cloth. Price, $1.50. Pp. 342. New York: Commonwealth Fund Division of Publications, 1928.

This is a brief and readable statement of the experiences of the Commonwealth Fund for the Prevention of Delinquency. It is written in nontechnical language, like most of the material on child guidance at the present time. The book is well illustrated with case records presented in such a form as to be really useful, and it deals with questions that occur in every family. To parents and teachers, to pediatricians, in fact, to any one who is daily faced with behavior and social problems of children, this book will be most helpful. The general get-up of the book, like that of all books published by the Commonwealth Fund, is excellent.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus und P. Uhlenhuth. Lieferung 24. Band III. Chemotherapie der Infektionskrankheiten. Von Prof. Dr. H. Schlossberger. Allgemeine Epidemiologie. Von Prof. Dr. K. Kisskalt. Allgemeine Prophylaxe der Infektionskrankheiten. Von Prof. Dr. E. Gotschlich. Third edition. Paper. Price, 22 marks. Pp. 549-828. Jena: Gustav Fischer, 1928.

The three articles in this issue are admirable examples of the best German scientific scholarship. Each in its way is a masterly exposition of the subject treated. In the article on chemotherapy, the clarity of arrangement and the frequent and extensive use of tabular summaries render the article peculiarly valuable to the active worker. The discussion of epidemiology by Kisskalt brings together in compact form a number of scattered observations and, while not doing full justice to the wealth of material gathered by other than German writers, particularly that from British sources, is nevertheless a generally fair and comprehensive summary. The somewhat threadbare subject of the general prophylaxis of the infectious diseases is skilfully and even freshly handled by Gotschlich. The characteristic national emphasis on the potency of official regulations is, however, not lacking.

ÉTUDES SUR LES NÆVI PIGMENTAIRES DE LA PEAU HUMAINE (MELANOBLASTOMES BÉNINS). Par A. Kissmeyer. Paper. Pp. 175, with 29 illustrations. Paris: Amédée Legrand, 1927.

Some of the author's first published results from working with the dermatologist Bruno Bloch of Zurich, in 1918, appeared in the *British Journal of Dermatology and Syphilis* in 1920, and in this monograph they are elaborated. They all deal with the method which bears Bloch's name of demonstrating microscopically the presence in certain cells of an oxidizing enzyme supposed to be tyrosinase. Use is made of 3, 4 dioxyphenylalanin, a compound with its name now shortened to dopa, and the test has been known now for several years as Bloch's dopareaction. Kissmeyer has studied the nature of the reaction carefully and determined the optimal p_H at which it occurs. Applying it to a study of nevi and to many other conditions in which the skin is pigmented, he has accumulated a great deal of evidence that the staining which results in certain cells is specific for epithelial cells, and that the cells peculiar to nevi whose origin has long been a matter of controversy are in reality epithelial cells.

EINSTELLUNG ZUR RÖNTGENOLOGIE. Eine Untersuchung über die Einfügung der Röntgenstrahlenanwendung in Praxis, Forschung und Unterricht. Von Prof. Dr. G. Holzknecht. Paper. Pp. 115. Vienna: Julius Springer, 1927.

This publication is planned to define the position of roentgenology in the art of medicine. The author first reports on expert opinions derived from various sources. This is followed by the presentation of his personal views. The involved language and the ungainly length of the sentences employed by the author makes the perusal of the pamphlet rather arduous. Another disagreeable feature lately indulged in by many German authors is the forced coinage of new compound words that are neither more instructive nor more ornamental than the usual plain terms. However, the essentials offered are in harmony with the reputation of the author as one of the foremost roentgenologists.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

PERSONAL HYGIENE FOR NURSES. Adapted Also to the Use of Students of Physical Education and Other Health Specialists. By John Wymond Miller Bunker, Ph.D., Professor of Biochemistry and Physiology, Massachusetts Institute of Technology, and Clair Elsmere Turner, M.A., Dr.P.H., Professor of Biology and Public Health, Massachusetts Institute of Technology. Second edition. Cloth. Price, $2. Pp. 210, with 15 illustrations. St. Louis: C. V. Mosby Company, 1928.

A rather heterogeneous collection of material on personal hygiene.

COLLOID CHEMISTRY, THEORETICAL AND APPLIED. By Selected International Contributors. Collected and edited by Jerome Alexander. Volume II: Biology and Medicine. Cloth. Price, $15.50. Pp. 1029, with illustrations. New York: Chemical Catalog Company, Inc., 1928.

Highly technical portion of a new system devoted to modern chemistry.

IMPROVISED EQUIPMENT IN THE HOME CARE OF THE SICK. By Lyla M. Olson, R.N., Superintendent of Nurses, Kahler Hospital, Rochester, Minn. Cloth. Price, $1.25 net. Pp. 109, with 150 illustrations. Philadelphia: W. B. Saunders Company, 1928.

Innumerable valuable hints on the preparation of beds and sickroom accessories.

STERILITY IN WOMEN, DIAGNOSIS AND TREATMENT. By Sidney Forsdike, M.D., B.S., F.R.C.S., Surgeon to the Hospital for Women, Soho Square, London. Cloth. Price, $3.50. Pp. 133, with 25 illustrations. New York: William Wood & Company, 1928.

Brief monograph along conventional lines and not quite up to date.

UNTERSUCHUNGEN ÜBER ENZYME. Von Richard Willstätter. In gemeinschaft mit Wolfgang Grassmann, Heinrich Kraut, Richard Kuhn, und Ernst Waldschmidt-Leitz. I. und II. Band. Paper. Price, 124 marks. Pp. 1775, with 183 illustrations. Berlin: Julius Springer, 1928.

Two large volumes of collected researches on enzymes.

ŒUVRES DE PASTEUR. Réunies par Pasteur Vallery-Radot, professeur agrégé a la Faculté de Médecine de Paris. Tome V: Études sur la bière. Paper. Price, 120 francs. Pp. 361, with illustrations. Paris: Masson & Cie, 1928.

The fifth volume of the complete works of Pasteur.

LES COURANTS CONTINUS ET LES COURANTS FARADIQUES. Par MM. L. Delherm, électro-radiologiste de l'Hôpital de la Pitié, et A. Laquerrière, électro-radiologiste de l'Hôpital Hérold. Paper. Price, 10 francs. Pp. 90, with 24 illustrations. Paris: Gauthier-Villars & Cie, 1929.

French monograph on electrotherapy.

COLITIS. By M. I. Wichert, and V. N. Smotrov. Forty-sixth book of Library of Practical Physician edited by S. A. Brustein, M.P. Konchalovsky, and S. P. Fedorov. Boards. Pp. 352, with 16 illustrations. Moscow, 1928.

This is in Russian!

FROM MAGIC TO SCIENCE. Essays on the Scientific Twilight. By Charles Singer. Cloth. Price, $7.50. Pp. 253, with illustrations. New York: Boni & Liveright, 1928.

Delightful, informative medical historical essays beautifully printed and illustrated.

THE SOUL OF THE HOSPITAL. By Rev. Edward F. Garesché, S.J., M.A., LL.B. Cloth. Price, $1.50 net. Pp. 207. Philadelphia. W. B. Saunders Company, 1928.

Inspiring message to nurses and others interested in the care of the sick.

RAVINGS IN DELIRIUM AND OTHER VERSE. By Dr. Ary Flaks. Cloth. Price, $2.10. Pp. 389. New York: Harold Vinal, Ltd., 1928.

Poems of an immigrant physician dealing largely with his work.

NELSON LOOSE-LEAF LIVING SURGERY. Editor-in-Chief, Allen O. Whipple, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University. Associate Editor, Fordyce B. St. John, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University. Volume VII: Gynecology and Surgical Obstetrics. Supervising Editor, Arthur H. Curtis, M.D., Professor of Gynecology, Northwestern University Medical School. In eight fully illustrated volumes including index. Cloth. Price, $135 per set. Pp. 729, with illustrations. New York: Thomas Nelson & Sons, 1928.

A RETIREMENT PLAN FOR COLORADO PUBLIC SCHOOLS. A Study Made at the Request of the Colorado Education Association and the State Department of Public Instruction. By Howard J. Savage, and Edmund S. Cogswell. With an introduction by Clyde Furst, Secretary of the Foundation. The Carnegie Foundation for the Advancement of Teaching, Bulletin Number 22. Paper. Pp. 72. New York: Carnegie Foundation for the Advancement of Teaching, 1928.

DAS PERMEABILITÄTSPROBLEM; SEINE PHYSIOLOGISCHE UND ALLGEMEIN-PATHOLOGISCHE BEDEUTUNG. Von Ernst Gellhorn, Dr. Phil. et Med. a. o. Professor der Physiologie an der Universität Halle a. S. Bd. 16—Monographien aus dem Gesamtgebiet der Physiologie der Pflanzen und der Tiere. Herausgegeben von M. Gildemeister und anderen. Paper. Price, 34 marks. Pp. 441, with 42 illustrations. Berlin: Julius Springer, 1929.

HANDBUCH DER NORMALEN UND PATHOLOGISCHEN PHYSIOLOGIE MIT BERÜCKSICHTIGUNG DER EXPERIMENTELLEN PHARMAKOLOGIE. Herausgegeben von A. Bethe, G. v. Bergmann, G. Embden und A. Ellinger. VI Band, 2 Hälfte: Blut und Lymphe. 2 Teil: Blut, Lymphsystem. Von W. Griesbach, B. Huber, F. Laquer, E. Meyer, usw., usw. Paper. Price, 46 marks. Pp. 667-1136, with 69 illustrations. Berlin: Julius Springer, 1928.

ORGANIC LABORATORY METHODS. By the late Professor Lassar-Cohn. Translated by Ralph E. Oesper, Ph.D., Associate Professor of Analytical Chemistry in the University of Cincinnati. Edited by Roger Adams, Director of Chemistry Laboratory, University of Illinois, and Hans T. Clarke, Eastman Kodak Company. Fifth edition. Cloth. Price, $6.50. Pp. 469, with 186 illustrations. Baltimore: Williams & Wilkins Company, 1928.

ÉLÉMENTS D'HISTOLOGIE. I: Cellule. Division cellulaire. Différenciation cellulaire. Classification morphologique et fonctionelle des cellules, tissus et organes. Éléments de soutien, contractiles, nutritifs. Sang, lymphe, organes hématopoietiques, vaisseaux sanguins et lymphatiques. Par P. Bouin, professeur à la Faculté de médecine de Strasbourg. Cloth. Price, 120 francs. Pp. 334, with 202 illustrations. Paris: Félix Alcan, 1929.

LEUCOPLASIE ET KRAUROSIS VULVAIRES. Étude anatomo-pathologique, traitement chirurgical. Par C. Sobre-Casas, chef du service de gynécologie de l'Hôpital Torcuato de Alvéar, Buenos-Aires, et Felipe F. Carranza, chef du service de gynécologie de l'Institut de médecine expérimentale. Préface du Professeur J. L. Faure. Paper. Price, 30 francs. Pp. 119, with illustrations. Paris: Masson & Cie, 1928.

THE PROMOTION OF THE WELFARE AND HYGIENE OF MATERNITY AND INFANCY. The Administration of the Act of Congress of November 23, 1921. Fiscal year ended June 30, 1927. Bureau Publication No. 186. Paper. Price, 25 cents. Pp. 150, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

DAS STAATLICHE LUITPOLDKRANKENHAUS ZU WÜRZBURG. Die ersten fünf Jahre des Vollbetriebes 1921-1926 bezw. 1923-1928. Herausgegeben von Geheimrat Prof. Dr. F. König, Direktor des Luitpoldkrankenhauses. Cloth. Price, 3.60 marks. Pp. 118, with 31 illustrations. Berlin: Julius Springer, 1928.

EM TORNO DA ARTERIA PULMONAR (NOTAS DE RADIOLOGIA CLINICA). Tese de concurso apresentada á Faculdade de Medicina da Baía para a docencia livre de clinica medica propedeutica. Por Adriano de Azevedo Pondé. Paper. Pp. 104, with 22 illustrations. Bahia, 1928.

RÉVISION DE LA DOCTRINE DES LOCALISATIONS CÉRÉBRALES UNITÉ SEGMENTAIRE DES RÉFLEXES. Par R. Brugia, professeur (libre) de l'Université de Bologne. Préface du Professeur Pierre Marie. Paper. Price, 24 francs. Pp. 195. Paris: Masson & Cie, 1929.

ANNUAL REPORT OF THE SURGEON GENERAL, U. S. NAVY, CHIEF OF THE BUREAU OF MEDICINE AND SURGERY TO THE SECRETARY OF THE NAVY FOR THE FISCAL YEAR 1928. Paper. Pp. 344. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

A TEXT-BOOK OF SURGICAL DIAGNOSIS. In Two Volumes. Edited by A. J. Walton, M.S., F.R.C.S., B.Sc., M.B. Leather. Price, $20. Pp. 1121, with 570 illustrations. New York: William Wood & Company, 1928.

SERVING THE CHILD IN FARGO. Part Three of the Final Report of the Fargo Demonstration. Paper. Pp. 127, with illustrations. New York: Commonwealth Fund, Division of Publications, 1928.

'WELLCOME' PHOTOGRAPHIC EXPOSURE CALCULATOR, HANDBOOK AND DIARY. Cloth. Price, 75 cents. Pp. 236, with illustrations. New York: Burroughs Wellcome & Company, Inc., 1928.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION FOR THE YEAR 1928. Volume XLIV. Cloth. Pp. 205, with illustrations. Boston: The Society, 1928.

REPORT OF THE PRESIDENT AND OF THE TREASURER OF THE CARNEGIE CORPORATION OF NEW YORK FOR THE YEAR ENDED SEPTEMBER 30, 1928. Paper. Pp. 88. New York, 1928.

POLYCLINICA DARIEN. Volume III (1926-1928). Paper. Various pagination. South Manchuria: Darien Hospital, 1928.

Medicolegal

Admissibility of Statements of Patients

(North American Acc. Ins. Co. v. Caskey's Adm'r. (Ky.), 4 S. W. (2d) 383)

This suit was brought to recover on a policy of accident insurance. The case was before the court of appeals of Kentucky on a previous occasion (218 Ky. 750, 292 S. W. 297) and, as directed in the opinion then rendered, the testimony of the widow and of interested witnesses as to statements made by the deceased was excluded at the second trial. Several disinterested witnesses were permitted to testify to conversations with the decedent. A number of questions were put to them, tending to elicit evidence of statements made by the decedent, showing how, when and where the alleged accident occurred. Such evidence, however, said the court of appeals, was wholly self-serving and clearly incompetent. Statements made by a party against interest are admissible against him, but any statements made by him which are self-serving are not admissible, and the fact that the party is dead does not change the rule. To the rule, however, there is an apparent exception, in that a physician is permitted to testify as to statements of a patient in giving a history of his case. But even in such a case the physician is permitted to testify only to such statements as may be necessary to enable him to render a proper diagnosis, and not to unnecessary extrinsic facts, such as the place where the accident occurred.

Irresistible Impulses and Criminal Responsibility

(State v. Buck (Iowa), 219 N. W. 17)

The defendant killed her husband by throwing burning gasoline on him. She was indicted for murder and, after pleading "not guilty," defended on the ground of insanity. She was convicted of manslaughter and appealed to the supreme court of Iowa. In pleading insanity, the defendant claimed more particularly that she was afflicted with a psychopathic personality of the excitable type and that aggravation of that "mental illness" produced the "insanity" that existed at the time of the killing. When the defendant was testifying, the court refused to allow her to say whether her father was "out of his mind" for some time before his death. On appeal, it was claimed that this refusal was improper because, since her defense was "insanity," she should have been allowed to go into the history of her family and reveal traits of unbalanced mentality. The inquiry of the witness, however, said the supreme court, called for a mere conclusion and was incompetent as such. The witness was not a physician. She had not related any facts to the jury on which her conclusion was based, nor was it any proof of the particular trend of peculiarity of her father's weakness. The father's mental status might have been caused by his last illness rather than by "insanity." On behalf of the defendant it was urged that the very method used to produce death, and the surrounding circumstances, suggested "insanity," so that the burden of proving it should not have been on the defendant. But, said the supreme court:

> Uniformly, this court has held that "sanity," not "insanity," is presumed, and there is nothing in the nature of the appellant's action in the case at bar which authorizes us to say that the rule should be different as applied to her. Outrageous and hideous crimes are often committed. Sometimes it is difficult for humanity to understand why sane men will perform these acts. Certain psychologists and medical experts believe that no mentally balanced man can be guilty of such atrocity; yet, in the application of criminal law, it is necessary for courts to adhere closely to human experiences and the consensus of opinion drawn therefrom. Until some more scientific method is devised by legislation, this must be the policy of criminal jurisprudence. However this may be, there was evidence before the jury upon which it could find that appellant, at the time in question, retained her judgment so that she rationally comprehended the nature and consequences of her act, and was persuaded by anger to do the fatal deed. Thus we cannot say, as a matter of law, that the jury was bound to believe, without evidence on appellant's part, that she there and then must have been "insane."

The defendant, said the court, asserts that there can be two kinds of insanity: (1) insanity dethroning the reason and destroying the power rationally to comprehend the nature and consequences of the act, without an insane, irresistible impulse, based on unsoundness of mind; (2) an "insane impulse," without that condition of mind which dethrones reason and judgment and destroys the power rationally to comprehend the nature and consequences of the act. In discussing these conditions on behalf of the defendant, the court quoted with approval from *State* v. *Felter,* 25 Iowa, 67, as follows:

> But if the jury believe from all the evidence and circumstances that the defendant was in the possession of a rational intellect or sound mind, and allowed his passions to escape control, then, though passion may for the time being have driven reason from her seat and usurped it, and have urged the defendant with a force at the moment irresistible to desperate acts, he cannot claim for such acts the protection of insanity.

The defendant contended that the trial court erred in failing to tell the jury that "psychopathic personality of the excitable type" was a mental disease. The supreme court found, however, that this was properly left to be determined by the jury on the basis of the evidence, because there was a controversy among the medical witnesses concerning the matter. One medical witness testified that a psychopathic personality of the excitable type is not necessarily a branch of insanity, while another testified that a psychopathic personality is a thing with which an individual is born, while insanity is sometihing that is ingrafted on an individual later in life. But in any event, the trial court would not have been justified in doing anything other than to submit the controversy to the jury, since it was immaterial as to what the "insanity" was called, if in fact the defendant was afflicted with it and killed her husband because of it. The judgment of the trial court was affirmed.

Roentgenographing Plaintiff by Court Order

(Gilbert v. Klar (N. Y.), 228 N. Y. S. 183)

The plaintiff based this suit for damages on injuries to his elbow. The court directed him to present himself to a physician, a roentgenologist, and to permit a roentgenogram of the elbow to be taken. From the court's order, the plaintiff appealed. The appellate court affirmed the decision of the court below, holding that a physician or surgeon designated by the court or judge to make a physical examination of the plaintiff should be permitted, under such restrictions and directions as might seem proper, to employ such means as are in common use in the profession. "We may take judicial notice," said the court, "of the fact that roentgenography is in common use and that the science and art thereof have been developed to a point where, in the hands of specialists, there is little or no danger."

Insanity Presumed to Continue

(Davidson v. State (Texas), 4 S. W. (2d) 74)

Davidson was convicted of murder and appealed to the court of criminal appeals of Texas. He was adjudged a lunatic in January, 1924, was confined in a lunatic asylum, was furloughed, and about August, 1924, was discharged. The killing with which he was charged, it was alleged, happened in October, 1926. The judgment of lunacy had not been vacated or annulled prior to the time of the trial for murder. The trial judge charged the jury that the burden of proving insanity was on the defendant, Davidson. He refused to charge that, the record having shown a judgment of insanity, such condition was presumed to exist until the contrary was shown, and that the burden rested on the state to prove sanity. The court having jurisdiction adjudged the defendant insane in January, 1924. This determined his mental status at that time and overcame the presumption of insanity theretofore existing. Its effect was to create a presumption of insanity from that time forward until the contrary appeared. It was a rebuttable presumption, however; it could be met, as it was in this case, by proof of the defendant's discharge from the asylum and by the evidence of the physician in charge of the defendant at the asylum where he was confined. Such evidence, however, would not have the effect of entirely annulling and abrogating the judgment theretofore rendered, so as to create again a presumption of sanity. It was evidence only of a changed mental status. It was to be considered by the jury along with the other facts in the case, in passing on the defendant's mental state at the very time of the alleged criminal act. It was the duty of the court to charge the jury that the burden of proving the sanity of the defendant

at the time of the commission of his alleged act was on the state and that from and after the judgment of lunacy the defendant was presumed to be insane until the contrary was shown by the evidence. The rule is that if a recovery or a lucid interval is alleged to have occurred, the burden of proving such allegation is on the party making it. If there is an unvacated adjudication of insanity against the defendant prior to the time of the alleged commission of an offense, the court should tell the jury that the state must prove beyond a reasonable doubt that at the time of the commission of the offense the accused was sane. The judgment of the trial court was reversed and the case remanded.

Physician's Statement Not Admissible in Evidence

(Francisco v. Circle Tours-Sight-Seeing Co. (Ore.), 265 P. 801)

The plaintiff sued the defendant because of personal injuries received accidentally while she was a passenger in one of the defendant's busses. After the accident she was taken to a hotel, where she was treated by Dr. S. At the trial the defendant sought to introduce a declaration of Dr. S. which, it was claimed, was made in the presence of the plaintiff and of one of the witnesses and detailed the patient's condition. It was not made under oath and was apparently a casual statement made to the manager of the hotel as the physician left the room in which the patient was lying in bed. The trial court excluded the proffered declaration. After judgment for the plaintiff, the defendant appealed to the supreme court of Oregon, assigning among the alleged errors of the trial court its failure to admit the declaration described. The supreme court found that the patient, the plaintiff in this case, was not shown to be in a position to answer the statement; that the statement would not add to the physician's sworn testimony; that it was not a part of the res gestae or circumstances constituting a part of the event as distinguished from a mere declaration relating to it, and that the declaration was therefore inadmissible and was properly executed.

Constitutionality of Illinois Medical Practice Act

(Ramsay v. Shelton et al. (Ill.), 160 N. E. 769)

The appellant filed a bill for an injunction in the superior court of Cook County, against the director and assistant director of the department of registration and education, the superintendent of registration, and members of a committee styled "professional committee of physicians." The committee was designated by the director of the department of registration and education to hear and make report on a complaint filed against the appellant, to revoke his license as a physician and surgeon. The appellant sought to restrain the appellees from further consideration and hearing of evidence before the professional committee. A temporary injunction was granted, answers were filed, and the cause was referred to a master, who found in favor of the appellant. Exceptions to the master's report were sustained by the superior court, and the bill was dismissed for want of equity. The appellant thereupon appealed to the supreme court of Illinois.

Section 60 of the Civil Administrative Code of Illinois designates the powers of the department of registration and education in carrying out the various statutes relating to professions, trades and occupations. It provides that certain of the enumerated functions of the department shall not be exercised "except upon the action and report in writing of persons designated from time to time by the director of registration and education." It provides further that for medical practitioners the five persons so designated shall be reputable physicians, licensed to practice medicine and surgery in Illinois, no one of whom shall be an officer, trustee, instructor or stockholder or otherwise interested, directly or indirectly, in any medical college or medical institution. The appellant contended that four of the five members of the professional committee were at the time of the hearing connected with one or more medical institutions and therefore ineligible to serve. To this the appellees replied that while members of the committee were connected with various hospitals, a hospital is not a medical institution. It is apparent, said the court, that the legislature intended that a hospital which instructs in the science of medicine or healing comes within the definition of a medical institution. General hospitals not giving courses in medical instruction do not come within the provision of the act, nor do medical societies or hospitals in which instructive lectures may from time to time be read constitute medical institutions where medical science is taught as contemplated by the act. The act must, however, by its most restricted application, be held to apply to medical institutions in which courses of instruction, whether graduate or undergraduate, are given. The Chicago Polyclinic Post-Graduate School (or Chicago Polyclinic) is an institution where postgraduate courses are given in the science of medicine and is a medical institution within the meaning of the language and intent of the act. Three of the committee hearing the charges against the appellant were at the time of such hearing so connected with the Chicago Polyclinic as to disqualify them for services in that capacity. It follows that the committee was without authority to proceed further with the hearing of the charges. This being so, the chancellor erred in refusing to issue the injunction as prayed.

In urging that the act was unconstitutional, as depriving licentiates of due process of law, it was pointed out that the act did not provide for notice, calling of witnesses, and review by a court. It was held, however, in *People* v. *Apfelbaum*, 251 Ill. 18, 95 N. E. 995, that the granting and revocation of a license to practice medicine is not the exercise of judicial power as that term is understood in referring to the distribution of the powers of government; that, while in the administration of the law, the state board of health, then charged with the duty of issuing and revoking licenses, necessarily exercised discretion and judgment, and while its proceedings were to that extent judicial in character, its proceedings were not for a court nor appropriate for a court. The revocation of a license to practice medicine is not intended as punishment for any offense, but for the protection of the public by the police power of the state. Due process of law does not necessarily imply judicial proceedings. Orderly proceedings according to established rules which do not violate fundamental rights must be observed, but there is no vested right in any particular remedy or form of proceeding. A general law administered in its regular course according to the form of procedure suitable and proper to the nature of the case, conformable to the fundamental principles of right and affecting all persons alike, is due process. The licensing board cannot from mere caprice, without cause, revoke a certificate. The statute requires a hearing before a certificate can be refused or revoked, and necessarily implies notice of such hearing and an opportunity to defend. The power to revoke a license cannot be exercised except on action and report in writing of five reputable citizens, licensed to practice medicine and surgery, selected by the director of registration and education to conduct a hearing on the charges preferred. Where there is no notice or hearing and a record thereof preserved, the party aggrieved may have a review of the proceedings by certiorari. The contention of the appellant that the medical practice acts of Illinois involved in this case are indefinite and that the terms "unprofessional" or "dishonorable conduct" cannot be made the basis of an action in revoking a license was decided contrary to the contention of the appellant in *People* v. *Apfelbaum*, heretofore cited.

The decree of the court below was reversed and the cause remanded with directions to grant the relief prayed in the bill.

Society Proceedings

COMING MEETINGS

American Association for the Study of Goiter, Dayton, Ohio, March 25-27. Dr. K. W. Kinard, Bryant Building, Kansas City, Mo., Secretary.

American Association of Anatomists, Rochester, New York, March 28-30. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Sec'y.

American Association of Pathologists and Bacteriologists, Chicago, March 28-29. Dr. H. T. Karsner, 2109 Adelbert Road, Cleveland, Secretary.

American College of Physicians, Boston, April 8-12. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Secretary.

Louisiana State Medical Society, New Orleans, April 9-11. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Pacific Coast Surgical Association, Catalina Island, California, February 22-23. Dr. E. L. Gilcreest, Fitzhugh Building, Union Square, San Francisco, Secretary.

Tennessee State Medical Association, Jackson, April 9-11. Dr. H. H. Shoulders, Lambuth Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association, and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Surgery, New York

5: 537-649 (Dec.) 1928

Controllable Spinal Anesthesia. G. P. Pitkin, Teaneck, N. J.—p. 537.
Spinal Anesthesia in Surgery of Head, Neck and Thorax. H. Koster, New York.—p. 554.
Id.: Experience of Twenty-Four Years. W. W. Babcock, Philadelphia.—p. 571.
Lumbar Puncture Technic. L. F. Sise, Boston.—p. 577.
Possible Complications with Spinal Anesthesia: Their Recognition and Measures Employed to Prevent and to Combat Them. C. H. Evans, New York.—p. 581.
Inhalation and Colonic Anesthesia. J. T. Gwathmey, New York.—p. 594.
Spinal Anesthesia in Obstetrics. S. A. Cosgrove, Jersey City.—p. 602.
Postoperative Phases of Spinal Anesthesia. F. C. McCormack, Englewood, N. J.—p. 605.
Spinal Anesthesia: In Orthopedic Surgery. F. H. Albee and S. O. Fry, New York.—p. 608.
Id.: In Kidney and Ureteral Operations. H. S. Jeck, New York.—p. 611.
Lumbar Anesthesia: 1,100 Cases. J. T. Case, Battle Creek, Mich.—p. 615.
Controllable Spinal Anesthesia: Use of Pitkin's Method in 100 Cases. J. L. DeCourcy, Cincinnati.—p. 620.
Elimination of Dangers of Spinal Anesthesia. G. Labat, New York.—p. 625.

Archives of Internal Medicine, Chicago

42: 801-956 (Dec.) 1928

*Production of Renal Injury in White Rat by Protein of Diet. L. H. Newburgh and A. C. Curtis, Ann Arbor, Mich.—p. 801.
*Generalized Granulomatous Lymphadenitis Associated with Diffuse Progressive Fibrosis of Lungs. C. L. Connor, Boston.—p. 822.
*Experimental Uremia. M. H. Streicher, Chicago.—p. 835.
*Review of Technical Methods of Demonstrating Circulation of Heart: Modification of Celluloid and Corrosion Technic. M. B. Whitten, Rochester, Minn.—p. 846.
*Atopy: Blood Calcium and Gastric Analysis. L. H. Criep and W. S. McElroy, Pittsburgh.—p. 865.
*Comparison of Effects of General Diets and of Standardized Diets on Tolerance for Dextrose. J. S. Sweeney, Dallas, Texas.—p. 872.
*Urea Tolerance Test: Index of Renal Function. S. E. King, New York.—p. 877.
Agranulocytosis (Schultz) and Agranulocytic Symptom Complex. W. C. Hueper, Chicago.—p. 893.
Ingested Creatine: Its Utilization and Rate of Excretion by Arthritic and Normal Subjects. F. A. Cajori, L. M. Wright and E. Stilz, Philadelphia.—p. 901.
Effects of Serums from Normal and from Anemic Persons on Growth of Seedlings. L. B. Upjohn, R. Isaacs and F. G. Gustafson, Ann Arbor, Mich.—p. 909.
*Bile Acids in Jaundice. I. Katayama, New York.—p. 916.
Distribution of Blood Sugar Between Corpuscles and Plasma in Diabetic and in Alimentary Hyperglycemia. M. Somogyi, St. Louis.—p. 931.
*Effect of Parathyroid Extract on Certain Factors Underlying Production of Edema. A. Cantarow and B. Gordon, Philadelphia.—p. 939.

Experimental Dietetic Injury of Kidney.—The effect of diets containing several different proteins in varying concentrations on the kidneys of the white rat has been studied by Newburgh and Curtis. Casein, beef muscle, beef liver and the seeds of cereals and legumes were used as the sources of the proteins. It was found that the degree of injury was determined by the type of protein, its concentration and the length of the feeding. The character of the protein is more important than either of the two other factors. Diets containing 75 per cent of dried liver produce a granular kidney in less than one year, but the same amount of casein, fed sixteen months, causes only a moderate tubular injury. The effect of a similar amount of beef muscle is intermediate between these two. The surface of the kidney remains smooth, but microscopic sections show numerous areas in which seriously injured glomeruli and necrotic tubules are embedded in fibrotic tissue.

Generalized Granulomatous Lymphadenitis with Fibrosis of Lung.—The case of a boy with a chronic progressive condition of the lungs, lymph nodes and spleen which lasted for thirty days, and ended with massive consolidation of the lungs, is recorded by Connor. At autopsy there was widespread enlargement of the lymph node, a diffuse fibrosis of both lungs and a large somewhat granular spleen. The bone marrow was moderately hyperplastic. Histologically, there was fibrosis, endothelial cell proliferation and cellular infiltration of the lymph nodes of a definitely inflammatory character, but in some places closely resembling the sclerosing lymphosarcoma of Hodgkin's disease. The spleen and lungs showed similar pictures, the histology of the lung being that of a chronic progressing fibrosis rather than the organization of a previous acute exudative lesion. The causative organism was not found.

Experimental Uremia.—Streicher succeeded in producing an experimental uremia in dogs by the intravenous injection of from 10 to 20 per cent solution of urea. It also caused a marked enteritis.

Demonstration of Circulation of Heart.—Whitten describes a modification of the celluloid and corrosion technic for the injection of the cardiac cavities. The injection of the arteries is continued uninterruptedly for from five to seven days, and that of the interior of the heart for from five to fourteen days, depending on the size of the heart and on other variable factors. When the injection is considered completed, the heart is immersed in water and a fine stream is directed against it to wash away everything but the cast. It is important to direct this stream so that it strikes just below the surface of the water. This allows the corroded tissues to float away and minimizes the injury to the smaller vessels. The washing does not have to be completed at once; in fact, washing is more easily carried out if the specimen is allowed to stand over night in water. If all the tissues cannot be washed away, the specimen should be placed again in fresh concentrated hydrochloric acid and left there for from twelve to twenty-four hours. Sometimes it is difficult to remove the epicardial fat. This can be remedied by placing the heart in xylene for a few hours, which will dissolve out the fat without injury to the cast. The heart is then washed again with water to remove the adhering particles of fat and the xylene. After the washing is completed, the specimen is allowed to stand in water to which enough sodium bicarbonate has been added to neutralize the acid that may still be present. A coating of varnish is applied with a fine spray from an atomizer; it is better to delay this procedure until all photographs have been taken. The preparations can be mounted dry, according to the method of Lundquist and Robertson, or wet, the solution of water, formaldehyde and glycerin described by Morison being used. The completed specimen shows the left coronary artery injected in red, the right coronary artery in blue and the coronary veins in white.

Blood Calcium in Asthma.—A study of the blood calcium in 167 cases of asthma and allied conditions is presented by Criep and McElroy in the hope of helping to define the importance of calcium determination and calcium treatment in atopic or allergic conditions. The normal blood calcium established was 10.43 mg. per hundred cubic centimeters of blood. A calcium deficiency could not be shown to exist in atopic conditions. Calcium therapy did not seem to produce a permanent increase in the blood calcium of atopically sensitive patients. The basal metabolic rate was not low in these patients; hence, thyroid was contraindicated. Gastric analysis suggests the somewhat frequent presence of an achlorhydria and hypoacidity in a large percentage of atopic conditions; hence, the advisability of investigating further the effect of acid therapy.

Tolerance for Dextrose.—Healthy young medical students were studied by Sweeney in respect to their tolerance for dextrose following antecedent standardized or controlled dieting and following uncontrolled dieting. It was found that antecedent standardized diets practically did not have any influence on the variability of the curve for dextrose tolerance as compared to the curves made after the subject had been on an ordinary general diet. There was a slight quantitative difference in the composite curves, which was explained on the basis of the difference in the composition of the diets.

Urea Tolerance Test.—An investigation was undertaken by King to determine whether the changes in blood urea concentration following the ingestion of urea could be utilized in

the estimation of kidney function. Following the ingestion of 1 Gm. of urea for each 10 pounds of body weight, a characteristic normal curve of blood urea was obtained. The blood urea returned to the control level in fourteen hours. Under similar conditions, a radically different curve was obtained in cases of impaired kidney function. Deviation from the normal occurred even in the early stages of renal impairment. With severely impaired renal function, the deviation from the normal was marked. Early degrees of renal impairment were frequently indicated by marked fourteen hour polyuria (over 750 cc.), although the blood curve remained normal. Based on these results, a simple test of kidney function is described, and the clinical applications are discussed.

Bile Acids in Jaundice. — Katayama states that patients with cholecystitis, disease of the liver, catarrhal jaundice, obstructive jaundice, cardiac decompensation and duodenitis show a marked increase in the bile acids of the blood serum, accompanied by urinary excretion of bile acids. The amount of bile acids in the urine, however, appears to be relatively small and extremely variable. The changes in the concentration of bile acids in the blood do not bear any relation to the variation of the bilirubin in the blood. The bile acids appear in the urine when the concentration of bile acids in the blood serum exceeds 20 mg. per hundred cubic centimeters. Acute obstructive or catarrhal jaundice produced a rapid rise in the bile acids of the blood serum from about five to seven times the normal figure. In chronic obstructions, however, the increase in bile acids in the blood is much less, being only three or four times the normal. This smaller concentration of bile acids in the blood in chronic obstructions may be explained thus: The production of bile acids in the body is limited. Normally, they are excreted by way of the bile into the intestine; then they are reabsorbed and again circulated, the bile acids in the body thus being kept at a constant amount. In obstructive jaundice of long standing, however, there is a continuous excretion of bile acids by the kidney, which, of course, cannot be reabsorbed, thus depleting the store of bile acids in the body.

Effect of Parathyroid Extract on Edema.—Inflammatory edema was studied by Cantarow and Gordon by the blister method, the observations being repeated at the height of the effect on the calcium produced by the intramuscular administration of parathyroid extract. The increase of calcium seemed to have a slight but definite inhibitory effect on inflammatory edema. The principal factor underlying the production of inflammatory edema is probably increased permeability of the walls of the capillaries. It appears that the administration of calcium exerts an inhibitory influence in this type of edema, perhaps as the result of the diminution in the permeability of the capillaries. The chief factor underlying the development of noninflammatory edema is probably an increased capacity of the tissue colloids for hydration. Retention of sodium is an important factor, but whether primary or secondary is uncertain. The affinity of the tissue colloids for water was studied by the intradermal injection of physiologic solution of sodium chloride, the test of McClure and Aldrich, in a group of twenty patients with cardiac or renal disease, some with and some without edema. The test, repeated after the administration of parathyroid extract, indicated a marked decrease in the capacity of the tissues for hydration, which accompanied the increase in available circulating calcium.

Archives of Neurology and Psychiatry, Chicago

21: 1-246 (Jan.) 1929

*Pituitary Cachexia. C. H. Frazier, Philadelphia.—p. 1.
Muscle Tone: Extensibility of Muscles in Decerebrate Rigidity. L. J. Pollock and L. Davis, Chicago.—p. 19.
*Aneurysms of Cerebral Vessels. I. J. Sands, New York.—p. 37.
*Extraneural and Neural Anomalies in Friedreich's Ataxia: Occurrence of Spina Bifida Occulta in Several Members of One Family with Friedreich's Disease. B. J. Alpers and R. W. Waggoner, Philadelphia. —p. 47.
Stuttering: IV. Action Currents. S. T. Orton, New York, and L. E. Travis, Iowa City.—p. 61.
Pathology of Paresis After Treatment with Malaria. A. Ferraro, New York.—p. 69.
*Relation of Neurorecurrences to Late Syphilis: Eighty-One Cases. J. E. Moore, Baltimore.—p. 117.
*Behavior Problems in Encephalitis: Relationship Between Behavior and Acute and Chronic Phenomena of Encephalitis. E. A. Strecker, Philadelphia.—p. 137.
*Blood Sugar Reaction to Insulin in Psychoses. K. E. Appel and C. B. Farr, Philadelphia.—p. 145.
*Insulin in Undernutrition in Psychoses. K. E. Appel, C. B. Farr and H. K. Marshall, Philadelphia.—p. 149.
*Chloride-Bromide Treatment in Epilepsy. J. Notkin, New York.—p. 165.
*Weight of Pancreas and Ratio of Weight of Brain to Pancreas in Epilepsy. H. A. Patterson and S. M. Weingrow, Sonyea, N. Y.—p. 179.

Pituitary Cachexia.—Two hundred and sixteen cases of pituitary dysfunction are reported on by Frazier. The majority of these have been classified as primary pituitary lesions, twenty as lesions of the pharyngeal duct, including Rathke's pouch, and thirty-two as suprasellar lesions with outspoken evidence of pituitary dysfunction. The great majority of the patients exhibited signs of hypofunction; the minority, of hyperfunction. In many of them there was acceleration or retardation of growth; in some, acromegaly and in many, marked accession of weight. In only one of the entire series was there an example of advanced cachexia; in another, possibly an early stage was present.

Aneurysms of Cerebral Vessels. — Sands reports three cases. One illustrates the arteriosclerotic type of cerebral aneurysm; the second, the embolic type of aneurysm. The third case represents an aneurysm probably caused by a congenital weakness of the vessel wall. There was no evidence of any arteriosclerosis, of local or general infection, or of endocarditis to explain the cause of the aneurysm.

Spina Bifida Occulta in Members of One Family.—Cases of Friedreich's ataxia present in two generations of one family are reported by Alpers and Waggoner. Spina bifida occulta was found in seven of nine offspring examined. It is not commonly found in persons with Friedreich's ataxia. It is an evidence of a tendency to degeneration in the family stock.

Neurorecurrences in Late Syphilis.—Moore asserts that neurorecurrences occur in at least 0.2 per cent of patients with early syphilis. Males are more susceptible to this form of neurosyphilis than females, and white persons more than negroes. An arsphenamine dosage of 0.1 Gm. for each 25 pounds (11.3 Kg.) of body weight for the first three injections of the first course of treatment, and the substitution of intramuscular injections of bismuth for inunctions of mercury in the interim, have apparently reduced the incidence of neurorecurrences in this clinic. The phenomenon of neurorecurrence is limited to inadequately treated patients with early syphilis; it does not appear late in the course of the infection. The type and severity of early lesions do not play any part, apparently, in its production. The treatment preceding the neurorecurrence is always inadequate, and usually consists of a few injections of an arsphenamine, without mercury or bismuth. Neurorecurrences are rare after the administration of bismuth. The time interval between the last treatment and the development of a neurorecurrence averages eight weeks, the extremes being one week and six months. The spinal fluid at the time of a neurorecurrence usually reacts positively, but does not show anything characteristic. The immediate clinical response to treatment is usually satisfactory except in lesions of the auditory nerve; here the paralysis is frequently permanent. The ultimate prognosis of neurorecurrences is grave. Of those patients with neurorecurrences who were given inadequate treatment, 50 per cent developed clinical neurosyphilis; and even after adequate treatment this occurred in four of fourteen patients. Paresis has been observed in three patients following a neurorecurrence. The time interval between infection and the development of late clinical neurosyphilis may be greatly shortened by an antecedent neurorecurrence. The probability of a neurorecurrence can be minimized in several ways, the most important of which is that the treatment of early syphilis should be continuous without any rest periods until the point is reached when treatment may be finally stopped.

Behavior Problems in Encephalitis. — According to Strecker, behavior disorders are a common accompaniment of epidemic encephalitis in children. When behavior disorder does occur, it is a severe pathologic disturbance in almost half the cases. Frequent and common signs and symptoms of the acute stage are sleepiness, fever, signs of involvement of the eye muscles, influenza-like manifestations, delirium and headache. Fairly typical cases of acute encephalitis, that is, those which show at the onset three or more of the usual syndrome

of signs and symptoms, are more likely to be followed by severe conduct deviation than are the atypical examples of the disease, that is, those in which less than three of the components of the syndrome of sleepiness—fever, signs of involvement of the eye muscles, influenza, delirium and headache—are present. In those cases in which the behavior was only slightly disturbed, there was a notable absence of fever, delirium and well marked influenza-like phenomena. In this series the behavior disturbances tended to be more severe in boys than in girls, but the more studied and deliberate type of misconduct was relatively more common in girls. In general, a specific sex behavior pattern could not be made out, but sexual deviation was somewhat more pronounced in the girls. When the onset of the encephalitis fell in the seven year period between the ages of 6 and 13, there appeared to be a somewhat greater likelihood of severe behavior disorders. The behavior difficulty in the large majority of instances was practically a continuation of the acute illness rather than its sequel. An acute well defined type of onset was more apt to be productive of severe behavior disorder than was a subacute, gradual and indefinite onset. When delirium occurred during the acute stage of the illness, the severe behavior disturbances were twice as common as in the nondelirious group. In twenty-eight instances there was the persistence or late development of neurologic signs. In them, severe involvement of behavior was less frequent than in the nonneurologic group. When parkinsonism occurred, the behavior was only slightly involved. Neurologic signs other than parkinsonism did not appear to be protective in a behavior sense.

Insulin in Psychoses.—The type of reaction to insulin in psychotic patients is described by Appel and Farr. A relatively sharp fall of 29 per cent in the majority of cases occurs within ninety minutes. The recovery process is more gradual and is not complete in three and one-half hours. There is no difference between the reactions of patients with affective and those with schizophrenic psychoses. The type of reaction appears to be more nearly like that found by Bartlett in subjects who are underweight. The fall obtained by the authors with 5 units of insulin almost equaled that obtained by Bartlett, who used 10 units.

Insulin in Undernutrition in Psychoses.—Appel et al. treated thirty-one patients with insulin. The dry, gray, flabby skin seen in most of these patients soon took on a slightly flushed, healthy appearance, with improved turgor, and in many cases the entire body seemed rejuvenated. In only two cases was there any effect on sleep, and then it was not severe and sedatives were not required. Renal effects were not noted, judging from examinations of the blood and urinalyses. Only two patients lost weight. Not a few were brought to a weight never before reached in their lives. The gains made were uniformly held. Nine distinct insulin shocks were experienced in the course of the thirty-one cases. Six of these were in three patients—each having two—all of whom showed an early intolerance, and treatment was discontinued. Two patients with shock were given dextrose intravenously; one was given a solution of dextrose by nasal tube, and the others were able to take orange juice by mouth. All soon recovered without serious effects. There were others who occasionally showed the premonitory signs of hypoglycemia, such as restlessness, hunger and a feeling of faintness and palpitation, but they were readily relieved after being given a little orange juice, sugar water or bread. The effect of the treatment on the mental status of the patients was as follows: Two neurasthenic patients were greatly benefited by a gain of 20 and 21 pounds. One patient with dementia praecox, who for the previous year had refused weighing, all medicines and physical therapy, became agreeable and cooperative and has so remained. Four depressed patients with involutional melancholia appeared to improve.

Chloride-Bromide Treatment in Epilepsy.—Notkin reports his experiences with the bromide treatment of epilepsy. He followed Ulrich's method of treatment exclusively, decreasing the intake of table salt to the necessary minimum of about 60 to 70 grains (3.8 to 4.5 Gm.) a day, adding from 8 to 17 grains (0.5 to 1.1 Gm.) of sodium bromide daily. To insure the administration of a sufficient amount of table salt, the bromide preparation contains 10 per cent of sodium chloride. Fifty-one patients were treated for a period of from fifteen to three months. Four of these patients were free from seizures for from a year to five months and were released from the hospital. They have continued treatment at home with the same results. Four patients died; the rest are still under treatment. The patients with severe and frequent seizures were given a small dose of phenobarbital combined with the bromide. The explanation of the good results in the latter cases may perhaps be sought in the pharmacologic law that two drugs of different groups having a similar action produce a more powerful effect than either one singly.

Weight of Pancreas in Epilepsy.—In cases of idiopathic epilepsy without emaciation, Patterson and Weingrow assert that the pancreas increases in weight with retardation in onset up to the age of 40; after that age it shows a weight decline. In the cases of nonidiopathic epilepsy, the weight of the pancreas fails to show any definite relation to the time of onset of the disease. The cases of essential and the cases of nonessential epilepsy without emaciation fail to show any relationship between the weight of the pancreas and the duration of the disease. When the weights of the brains in a series are arranged in order of ascending magnitude, the corresponding weights of the pancreas assume the same order in the group of cases of idiopathic epilepsy without emaciation, but not in either the group of cases of nonessential epilepsy without emaciation or that of cases of essential epilepsy with emaciation. In the cases of idiopathic epilepsy without emaciation, the weight of the pancreas falls below normal in 37.5 per cent, while the weight of the brain falls below normal in 48.4 per cent. In the cases of idiopathic epilepsy with emaciation, the weight of the pancreas falls below normal in 58.6 per cent, while the weight of the brain falls below normal in 51.7 per cent. The incidence of weights below normal of the pancreas and of the brain in epilepsy per se is greater than the additional increment superimposed by emaciation. Microcephaly accounts for a small proportion of the brains which are subnormal in weight. The authors' cases failed to show any evidence of retrograde changes in the weight of the pancreas with the advent of senescence. The ratio of the weight of the brain to that of the pancreas is not constant in epilepsy.

Archives of Pathology, Chicago

6: 947-1154 (Dec.) 1928

Experimental Rheumatic Arteritis. B. J. Clawson, Minneapolis.—p. 947.
*Angioblastic Meningiomas: Three Cases. P. Bailey, H. Cushing and L. Eisenhardt, Boston.—p. 953.
Peculiar Structures in Myocardium of Domestic Fowl. A. M. Pappenheimer and S. M. Seidlin, New York.—p. 991.
*Formation of Abscesses in Infection with Bacterium Monocytogenes. W. Bloom, Chicago.—p. 995.
*Defensive and Metabolic Apparatus of Lungs: Lungs and Macrophage System. B. M. Fried, Boston.—p. 1008.
*Reaction of Oligodendroglia to Injury of Brain. A. Ferraro and L. M. Davidoff, New York.—p. 1030.
*Chemical Analysis of Liver and Spleen from Case of Lipoid Histiocytosis (Niemann-Pick's Disease). R. P. MacFate, Chicago.—p. 1054.
*Vascular Hypoplasia in Status Lymphaticus. P. M. Zeek, Cincinnati.—p. 1058.
Mounting of Malformations: Contribution to Esthetics of Pathologic Museum. A. Plaut, New York.—p. 1062.
Carcinomas of Uterine Cervix: Histologic Structure, Malignancy and Prognosis. W. C. Hueper, Chicago.—p. 1064.

Angioblastic Meningioma.—By the term angioblastic meningioma, Bailey et al. do not mean meningiomas that merely happen to be highly vascular in the sense in which the term angioglioma is sometimes used for a highly vascular glioma. What they do mean is that a meningeal tumor which possesses the unmistakable naked-eye appearance of the usual and familiar type of one of these lesions may prove histologically to have the same architectural features and reticular network that is possessed by the hemangioblastomas which originate within the brain itself, more frequently, if not exclusively in the cerebellum. One hundred and eighty-five intracranial meningiomas have been carefully restudied with the following results: 1. About 90 per cent of them are of the pure and well recognized mesotheliomatous type: 2. Of the remainder, a few show definite fibroblastic characteristics (arachnoid fibroblastoma of Mallory and Penfield), an occasional tumor having become almost wholly fibromatous. 3. A few have definite sarcomatous tendencies. 4. The three cases here recorded show the unmistakable histologic characteristics of a hemangioma. In all three there were solid, encapsulated lesions which did

not show any tendency to form cysts and in this respect were unlike the more common cerebellar hemangiomas. All three, at the time of the primary operation, were consequently regarded, on the basis of their gross appearance, merely as unusually vascular meningiomas, an opinion which was supported by the original pathologic reports on the tissues. In none of the three cases was a primary complete extirpation successful, and the recurrent growth ultimately attained a huge size.

Formation of Abscesses by Bacterium Monocytogenes.—In the course of a series of experiments made by Bloom in which rabbits were infected with *Bacterium monocytogenes* to produce a monocytosis, small abscesses developed in many of the viscera of some of the animals. Abscesses in the liver and the suprarenal gland of the rabbit caused by intravenous injection of *Bacterium monocytogenes* were delimited by the circulating lymphocytes and monocytes. These were the cells which were transformed into the exudative mononuclears of the abscesses. The local histiocytes played an insignificant part in the abscesses. In the abscesses of the spleen and the lymph node, the local lymphocytes became polyblasts. A few of the cells of the reticular syncytium also turned into large phagocytes. Mitoses were infrequent in these cells. The phagocytes of the abscess resulting from the subcutaneous injection of *B. monocytogenes* were practically exclusively of hematogenous origin. In none of these inflamed tissues was there any evidence in favor of the special leukocytes and exudative mononuclear phagocytes (polyblasts) developing from either fibroblasts or vascular endothelium.

Defensive and Metabolic Apparatus of Lung.—Fried asserts that the loose connective tissue, particularly the mesenchymal cells (macrophages) which it harbors, plays a rôle in immunity, in infection and in the metabolism of different substances, thus representing a defensive and metabolic apparatus of the organism. It is furthermore possible that mesenchymal tissues also possess properties of internal secretion. The lungs possess a highly developed mesenchymal, that is, a defensive and metabolic, apparatus. Macrophages are present in the wall of the alveoli and also in the peribronchial and the perivascular connective tissue. Pluripotential mesenchymal cells, moreover, line the air spaces themselves. These alveolar wall cells, in a manner typical of the large mononuclear phagocyte, the macrophage, phagocytose and store dyes and oils, respectively. Stimulated by these substances, they immediately proliferate and separate from the alveolar wall, forming the intra-alveolar "inflammatory exudate" (the "dust cells," the "heart failure cells"). Under the influence of the intratracheally injected oil, they form typical giant cells of the Langhans type. In three examples of human lungs, the cells lining the wall of the alveoli displayed characteristics noted in the lungs of animals during experimental work.

Reaction of Oligodendroglia to Injury of Brain.—Experiments were performed by Ferraro and Davidoff consisting in the aseptic removal of a portion of the cerebral cortex in twenty-two cats. At intervals, varying between twelve hours and sixty days after operation, the animals were killed, the brains were removed, and the region of the lesion was fixed immediately in Cajal's solution of formaldehyde-ammonium bromide mixture. Frozen sections were stained for oligodendroglia and microglia by the silver carbonate technic evolved from Hortega's original method by the modifications introduced by Globus and Penfield. Some of these sections were counterstained, following the silver impregnation, with "Fettpenceau." The sections thus prepared were examined with a view toward understanding the rôle played by the oligodendroglia in the general reaction to the brain injury. Special attention was paid to the question of whether or not these cells participated in the formation of scavenger cells, and to the manner of this participation, if it existed. The oligodendroglia cells were found to react to cerebral injury by acute swelling, atrophic degeneration, hypertrophy, hyperplasia, and occasionally by the fusion of several cells into clusters. It was possible also to demonstrate the transformation of oligodendroglia cells into compound granular corpuscles, and to follow the various stages in this transformation. The change may occur directly from a normal cell or through an intermediary stage of swelling or hypertrophy.

Pathology of Liver and Spleen in Lipoid Histiocytosis.—The liver and the spleen from a patient with Niemann-Pick's disease were examined by MacFate. They showed a great increase over the normal in lipoid content, especially phosphatides. This observation confirms previous work. The analysis serves to confirm the differentiation between Gaucher's disease and Niemann-Pick's disease.

Vascular Hypoplasia in Status Lymphaticus.—Two cases of status lymphaticus are reported by Zeek in which the cause of death was cerebral hemorrhage resulting from hypoplasia of the cerebral vessels. The thinness of the vessel walls is accounted for by deficiency of musculature, there being no decrease in the thickness of intima and adventitia. A corresponding decrease in musculature in vessels of other organs than the brain was not observed.

Association of Am. M. Colleges Journal, Chicago

4: 1-96 (Jan.) 1929

Standardization and Freedom for Experiment. W. L. Bryan, Bloomington, Ind.—p. 1.
Coordination in Teaching of Fundamental and Clinical Sciences. A. D. Hirschfelder, Minneapolis.—p. 6.
Experiments in Correlating Clinical, Laboratory and Didactic Instruction in Psychiatry and Therapeutics. H. R. Wahl, Kansas City, Kan.—p. 13.
Director of Teaching Hospital: Dean or Superintendent. A. C. Bachmeyer, Cincinnati.—p. 26.
Training of Specialist: Surgery. A. Primrose, Toronto.—p. 33.
Improvement of Medical Instruction. M. E. Haggerty, Minneapolis.—p. 42.

Georgia M. Association Journal, Atlanta

17: 535-583 (Dec.) 1928

Surgical Treatment of Pulmonary Tuberculosis. H. N. Page, Augusta.—p. 535.
Zinc Ionization in Treatment of Purulent Otitis Media. F. B. Blackmar, Columbus.—p. 540.
Fecal Fistula, Peritonitis, Intestinal Obstruction and Enterostomy. B. T. Beasley, Atlanta.—p. 546.

Journal of Experimental Medicine, Baltimore

49: 1-161 (Jan.) 1929

Filtration of Virus of Herpetic Encephalitis and of Vaccinia. H. K. Ward and F. F. Tang, Boston.—p. 1.
*Effects of Copper on Liver. F. B. Flinn and W. C. VonGlahn, New York.—p. 5.
Studies in Asthma: VII. Pulmonary Circulation in Guinea-Pig During Anaphylactic Shock. S. Went and C. K. Drinker, Boston.—p. 21.
Hypersensitiveness to Diphtheria Bacilli: I. "Immediate" Skin Reaction Which Can Be Passively Transferred. J. M. Neill and W. L. Fleming, Nashville, Tenn.—p. 33.
*Germicidal and Hemolytic Action of α-Brom Soaps. A. H. Eggerth, New York.—p. 53.
Fowl Paralysis (Neurolymphomatosis Gallinarum): I. Clinical Features and Pathology. A. M. Pappenheimer, L. C. Dunn and V. Cone, New York.—p. 63.
Id.: II. Transmission Experiments. A. M. Pappenheimer, L. C. Dunn and S. M. Seidlin, New York.—p. 87.
*Calcium and Inorganic Phosphorus in Blood of Rabbits: IV. Influence of Light Environment. W. H. Brown, New York.—p. 103.
Sensitizing Properties of Bacteriophage. C. W. Jungeblut and E. W. Schultz, San Francisco.—p. 127.
*Calcium and Phosphorus Metabolism: V. Bone Trabeculae as Readily Available Reserve Supply of Calcium. W. Bauer, J. C. Aub and F. Albright, Boston.—p. 145.

Effects of Copper on Liver.—From experiments made by Flinn and VonGlahn it is apparent that copper is not the cause of the pigment deposits in the liver of the rabbit, since the same change is produced when sodium acetate is given with the standard diet. Furthermore, when rabbits are fed on a diet of carrots exclusively, the deposition of pigment occurs with greater rapidity than with copper or its compounds and the standard diet. The changes resulting in the livers of the carrot-fed animals are identical in every way with those seen following large doses of copper and in animals given comparable doses of sodium acetate. On a diet of peeled turnips, pigment is deposited in the liver of the rabbit, though much more slowly than with carrots. As to the manner in which the pigment reached the portal areas, nothing definite could be determined. In this situation the pigment was more often in phagocytic cells, and only occasionally in the connective tissue elements. Necrosis of individual liver cells was carefully sought for, but could not be found. In none of the rabbits given copper could a definite cirrhosis be proved.

Germicidal Action of α-Brom Soaps.—The germicidal action of various soap derivatives is being studied by Eggerth. In the present investigation, the alpha-brom derivatives of the ordinary saturated soaps have been prepared and tested. They are usually more germicidal than the unsubstituted soaps. Only when *B. typhosus* was the test organism was there no increase in germicidal action. For any test organism, germicidal action of the brominated soaps increases rapidly with increasing molecular weight up to a certain point, and then diminishes. In the series studied, brominated soaps of 12 and 14 carbon atoms were most germicidal for the gram-negative organisms, while soaps of 16 and 18 carbon atoms were most germicidal for gram-positive organisms. The brominated soaps are, in general, more active in acid than in neutral or in alkaline reactions. For certain organisms, the brominated soaps are among the most rapid and potent germicides known.

Effect of Light Environment on Blood.—Experiments were made by Brown to determine whether a light environment comprising radiations of comparatively long wavelength and only a small amount of energy was capable of affecting the chemical equilibrium of the blood, as indicated by the calcium and inorganic phosphorus content of the blood of normal rabbits. A study was made of the effects produced by prolonged exposure to fixed environmental conditions (noon light and darkness) as compared with a varying environment of diffuse, filtered sunlight and by a change from one environment to another. It was found that the chemical equilibrium of the blood was definitely affected by the conditions employed and that the effects produced could be correlated with differences in organic constitution, on the one hand, and, on the other, with certain differences in the functional activity of the same animals, involving nutrition and growth and the proliferative activity of hair follicles.

Bone Trabeculae Store Calcium Reserve.—Experiments were made by Bauer et al. to ascertain whether the bone trabeculae act as a reserve supply of calcium. They found that bone trabeculae are easily depleted by the prolonged administration of parathyroid extract, long continued negative calcium balance and growth. A long continued high calcium diet results in a rapid accumulation of the trabeculae. The bone trabeculae therefore serve as the storehouse of readily available calcium. The shafts have a slow progressive exchange of inorganic salts and are not influenced except in the case of unusual body demands. It is suggested that the absence of trabeculae in premature infants and their depletion at the end of four months in a normal baby might well be an etiologic factor in rickets. Administration of parathyroid extract to growing or adult cats has been without effect. Daily injections into growing rats result in an increased number of trabeculae and smaller bones.

J. Pharmacology & Exper. Therap., Baltimore

34: 333-452 (Dec.) 1928

*Pharmacology of Bismuth Salts: V. Tissue Distribution of Bismuth. C. S. Leonard, New Haven, Conn.—p. 333.
*Id.: VI. Permeability of Placenta to Bismuth. C. S. Leonard and R. B. Love, New Haven, Conn.—p. 347.
*Id.: VII. Concentration of Bismuth in Blood of Dogs After Intramuscular Injection of Bismuth Antisyphilitics. C. S. Leonard and A. F. Seibert, New Haven, Conn.—p. 355.
*Phototherapy in Pernicious Anemia. D. I. Macht and W. T. Anderson, Jr., Newark, N. J.—p. 365.
Action of Chlorates, in Particular Potassium Chlorate, on Blood in Animals. J. L. Ulrich and V. A. Shternov, Bloomfield, N. J.—p. 391.
*Pharmacodynamics and Value of Bismuth Subnitrate in Hypertension. E. J. Stieglitz, Chicago.—p. 407.
Iso-Amyl-Ethyl-Barbituric Acid (Amytal) as Laboratory Anesthetic for Cats. M. G. Mulinos, New York.—p. 425.
Salicylates: XVII. Alleged Inefficiency of Phosphoric Acid Distillation Method of Estimating Salicylic and Salicyluric Acids. C. C. Johnson, San Francisco.—p. 437.

Distribution of Bismuth in Tissues After Intramuscular Injection.—Leonard states that twenty-four hours after the intramuscular injection into the rabbit of a dose of soluble sodium potassium bismuth tartrate lethal to rabbits and containing 82 mg. of bismuth per kilogram of animal weight, the average order of distribution of bismuth in the organs (totals) is as follows: kidneys (highest), liver and lungs, followed by a varying order for the other visceral organs. The average order of tissue percentage content (1 mg. per hundred grams of tissue) is: kidney (highest), spleen, suprarenals, liver, lung, brain, heart. Twenty-four hours after the intramuscular injection into the rabbit of a dose of soluble sodium bismuth citrate containing 86 mg. of bismuth per kilogram of animal weight (nonlethal), the organ totals of bismuth are in the following average order: liver (highest), kidneys, brain and heart, with other organs lower and very variable. The average order of tissue percentage content is: suprarenal (highest), spleen, kidney and liver, with heart, brain, bone, muscle and lung lower and more variable. Two weeks after the intramuscular injection into the rabbit of the maximum tolerated dose of dipotassium bismuth tartrate containing 75 Gm. of bismuth per kilogram of animal weight, the organ totals display the following average order of distribution: liver (highest), kidney, spleen, lungs. The average order of percentage content is: kidney (highest), liver, spleen and lung, while the suprarenal and heart do not display any trace of bismuth. Blood and bile are somewhat variable in content. Twenty-four hours after the soluble tartrate injection, the average blood concentration is 0.0035 mg. of bismuth per cubic centimeter; after the citrate it is 0.0037 mg. of bismuth per cubic centimeter. After tartrate the bile concentration is 0.0347 mg. of bismuth per gram; after citrate, 0.0304 mg. of bismuth per gram.

Permeability of Placenta to Bismuth.—Leonard and Love found that bismuth, in the form of either the soluble or the insoluble alkali bismuth tartrates, passes through the placenta in the rabbit when lethal doses are injected intramuscularly into the pregnant animal. Following single sublethal doses, detectable amounts of the metal are not found in the fetus forty-eight hours after the injection. The bismuth, which reaches the fetal tissues forty-eight hours after intramuscular injection in the mother, is detectable only in the fetal kidneys and the amount in each whole embryo is so small that the renal organs of an entire litter must be bulked together and analyzed as one lot. Fetal kidneys, like those of adult animals, fix and retain bismuth. The percentage content of bismuth per gram of tissue in the fetal kidneys after intramuscular injection of the metal into the mother ranges from one-half to an amount of the same order as that in the maternal kidneys. Bismuth does not accumulate heavily at the placental barrier after single intramuscular injections in the pregnant rabbit. The percentage content of the metal in the placenta is not much greater than that found in a normal nonpregnant uterus after a similar injection into the normal rabbit. Bismuth in detectable amount is not present in the total combined liver tissue of entire unborn litters of rabbits forty-eight hours after intramuscular injection into the mother, even if the dose is supralethal for the animal.

Concentration of Bismuth in Blood After Intramuscular Injection.—Leonard and Seibert state that in the dog after intramuscular injection of single massive doses of dipotassium bismuth tartrate (from 40 to 50 mg. of bismuth per kilogram), followed by massage at the site of injection, bismuth appears in the blood stream within two hours in amounts which can be determined quantitatively. Without massage the appearance of the metal is delayed twenty-four hours. The blood concentration of bismuth is maintained at a fairly constant level from the second hour to the forty-eighth, after which it lessens. The maximum concentration ranges from 0.001 to 0.003 mg. per cubic centimeter. Detectable amounts of bismuth are present in the blood for several weeks after injection but tend to disappear between the twenty-first and thirtieth day. The blood concentration of bismuth parallels that of mercury after the injection of similar salts of low solubility similarly introduced. The concentration of bismuth in twenty-four hour urine specimens is consistently higher than the blood concentration in the same animals.

Phototherapy in Pernicious Anemia.—Favorable results are reported by Macht and Anderson from the use of phototherapy in pernicious anemia. The toxic reaction of pernicious anemia blood serum is diminished when such serum is irradiated by ultraviolet rays in a quartz tube outside the body. Such detoxification of the blood serum also occurs, as shown by the same test, after exposure of patients with pernicious anemia to ultraviolet rays. A comparative study of the detoxifying power in this respect of various monochromatic ultraviolet rays on different samples of the same pernicious anemia serum indicate that the wavelengths 3130 and 2967 are the most efficient in

this respect. The addition of a photosensitizing drug, sodium tetrabromfluorescein, in small quantities, to the pernicious anemia serum increases the detoxifying efficiency of the ultraviolet rays. A comparative study of monochromatic, polarized and nonpolarized ultraviolet rays indicates that in respect to their effect on pernicious anemia toxin, the ordinary or nonpolarized waves are more efficient. The penetration of ultraviolet rays through living animal tissues is shown to be much greater than has been generally supposed. Ultraviolet irradiation, with or without the addition of photosensitizing drugs, in a series of patients with pernicious anemia so far studied by the authors has been followed by a definite improvement in their general condition. This improvement is not only indicated by the subjective and objective amelioration of symptoms and a marked improvement in the "anemia" or morphologic blood picture, but also goes hand in hand with a diminution in the toxicity of the blood and therefore seems to point to a destruction or inhibition of the causative factor in the disease.

Value of Bismuth Subnitrate in Hypertension.—According to Stieglitz, bismuth subnitrate causes a slight reduction in chloride content of the blood, as do other nitrates, through the production of a chloride diuresis. It also assists materially in obtaining a reduction in arterial tension in hypertension, both in nonpregnant and in pregnant women. The therapeutic results are much better when arteriosclerosis is not marked. The fundamental value of bismuth subnitrate in hypertension lies in its property of breaking the vicious circle of vascular fatigue and hyperirritability, with more spasticity and fatigue, thereby permitting physiologic rest.

Medical Journal and Record, New York

129: 1-60 (Jan. 2) 1929

Continuity. S. Sprigge, London.—p. 1.
*Determination of Bleeding Point of Epistaxis. G. B. McAuliffe, New York.—p. 6.
Pain in Cholelithiasis. H. Cohen, New York.—p. 7.
Hemorrhage. J. W. Shuman, Los Angeles.—p. 8.
Acute Infections of Face and Neck. G. G. Speer, Los Angeles.—p. 9.
*Social and Medical Aspects of Sterilization. R. Peterson, Ann Arbor, Mich.—p. 12.
Brief History of Rickets Therapy. T. S. Harding, Mt. Ranier, Md.—p. 16.
Eponyms of Medical Electricity. H. Goodman, New York.—p. 20.
Present Status of Roentgen Therapy of Tonsils. H. Fried, New York.—p. 23.
Retropharyngeal Lymphadenitis and Abscess. H. B. Sheffield, New York.—p. 26.
Infection, Immunity and Cell Reaction in Tuberculosis. W. P. Nolan, New York.—p. 28.
*Relationship of Tonsillar Infection to Mental Disease. J. A. Jackson and H. V. Pike, Danville, Pa.—p. 31.
Lower Lobe Pulmonary Tuberculosis. M. Jacob, Philadelphia.—p. 32.
Foreign Body (Tooth) in Bronchus. E. Birdsall, Glens Falls, N. Y.—p. 36.
Question of Tonsillectomy. J. C. Scal, New York.—p. 36.
Banti's Disease—Splenectomy—Recovery: Death from Lobar Pneumonia. H. Lowenburg, Philadelphia.—p. 39.
Philosophy of Medicine in Antiquity. C. G. Cumston, Geneva, Switzerland.—p. 43.
Proctology in America and Abroad. M. J. Synnott, Montclair, N. J.—p. 49.

Determination of Bleeding Point of Epistaxis.—McAuliffe deprecates treating epistaxis by blindly plugging the nose with gauze in order to make pressure on the unknown spot of bleeding. Before resorting to tampons, he looks for the customary points in their order of frequency: first, Kiesselbach's area; second, the upper portion of the nose near the root of the middle turbinate; third, on the middle of the septum where nevi may exist; fourth, along the convexity of the inferior turbinate or the floor three fourths of the way back; fifth, for nevi scattered throughout the nose. When control is gained, the general condition should be scrutinized. One always gives a saturated solution of calcium lactate. High blood pressure should be treated if found. Neurovascular treatment should be given in the bleeding of puberty. Quiet should be enjoined.

Social and Medical Aspects of Sterilization.—Peterson pleads for the careful consideration by conscientious medical men of the facts in every case before a decision is made for or against sterilization.

Relationship of Tonsillar Infection to Mental Disease.—Of 806 mental patients examined by Jackson and Pike, sixty-four, or 7.9 per cent, gave evidence of tonsillar infection. The types of psychoses and the percentage in which infection of the tonsils was found were as follows: psychosis with mental deficiency, eighteen; dementia praecox, sixteen; manic-depressive psychosis, fifteen; epileptic psychosis, eight; paresis, three; paranoid condition, two; alcoholic psychosis, one; psychosis—postencephalitic—one. In these sixty-four positive cases fifty-one patients were operated on, tonsillectomy being performed, while in thirteen permission was not obtained for operation and hence these patients remained untreated. Of the fifty-one patients operated on thirteen, and of the thirteen patients not operated on three, were returned to their homes. The percentage in which favorable results might possibly be claimed from the removal of infected tonsils is 23.5, or 0.5 more than in the group in which this focus of infection was not removed. A further comparison of this group of 806 patients, of whom 7.9 per cent showed a focal infection of the tonsils, and in 80 per cent of whom this infection was removed, with a like group of 751 patients admitted during the two year period immediately preceding, and in none of whom were the tonsils removed, shows that 36 per cent were returned to their homes, as against 25.4 per cent of those in the group in which tonsillar infection was eradicated.

Michigan State M. Society Journal, Grand Rapids

28: 1-84 (Jan.) 1929

Master Surgeon (Theodore A. McGraw). F. A. Coller, Ann Arbor.—p. 1.
Bladder Paralysis. R. E. Cumming, Detroit.—p. 5.
Management of Pyelitis. C. W. Eberbach, Milwaukee, Wis.—p. 11.
Place of Pyelography in Diagnosis. E. Cathcart, Cleveland.—p. 15.
Importance of Immunizing Preschool Children Against Diphtheria. F. M. Meader, Detroit.—p. 22.
Orthopedic Treatment of Poliomyelitis. E. W. Ryerson, Chicago.—p. 25.
Functions of Sanatorium. J. W. Coon, Stevens Point, Wis.—p. 29.
Health Education and Public Health of Future. I. Galdston, New York.—p. 32.
Spinal Anesthesia. J. E. Watson, Detroit.—p. 36.
Treatment of Vascular Lesions of Extremities. A. W. Allen and R. H. Smithwick, Boston.—p. 38.
*New Technic in Surgical Treatment of Raynaud's Disease. C. F. McClintic and W. J. Seymour, Detroit.—p. 43.
Education of Diabetic. F. S. Perkin, Detroit.—p. 46.

Surgical Treatment of Raynaud's Disease.—In a case reported by McClintic and Seymour, a ganglionectomy was done on the right side, Dec. 3, 1926, according to the technic of Kanavel and Davis. The cervical sympathetic ganglions and chain were removed, including the stellate ganglion and its connections. Because of the beneficial effects of the operation on the right side, it was decided on Feb. 11, 1927, to do a similar operation on the left side. When the operation was begun the manipulation of the carotid sheath with its contents, including the vagus nerve, resulted in stoppage of the heart, since the accelerator fibers to the heart on the opposite side had been severed at the first operation. It was then decided to do a ramisectomy on the left side. The technic employed in the approach in both operations was similar to that of Davis and Kanavel, with the exception that the authors found that a straight instead of a "hockey stick" incision gave sufficient room for approach. The sternocleidomastoid muscle was retracted laterally and the operations were done from the medial side of the muscle. After exposure the cervical sympathetic chain was followed down to the stellate ganglion. The gray rami from the stellate ganglion to the brachial plexus were exposed, lifted on a right angle hook and cut with scissors.

Military Surgeon, Washington, D. C.

64: 1-168 (Jan.) 1929

Airplane Ambulance: Its Use in War. R. K. Simpson.—p. 35.
*Outbreak of Meningococcic Meningitis. A. Carbonell and E. L. Cook.—p. 49.
Mental Survey at Fort Benning. J. M. Huddleston and G. P. McNeill, Jr.—p. 75.
Leprosy. H. W. Wade.—p. 81.
Carcinoma of Horseshoe Kidney. J. C. Kimbrough.—p. 91.
Case of Bubonic Plague in California. F. E. Gessner.—p. 95.
Days Gone By: Strange Case of Surgeon General Hammond. L. C. Duncan.—p. 98.
National Guard and Reserves: First Corps Area. W. Lyster.—p. 111.

Epidemic of Meningococcic Meningitis.—Nineteen cases are reported by Carbonell and Cook. The mortality was 10.5 per cent. They urge that strict attention should be paid

to the nutritional state of the patient, and in patients who do not take sufficient calories voluntarily to prevent marked weight loss, tube feeding should be instituted. Great care should also be exercised that a positive water balance is maintained and that dehydration is not allowed to occur as it seems especially prone to do in this disease. When possible, it is advisable to correct this by the administration of dextrose solution in preference to saline on account of the additional calories contained in it. Combined intraspinal and intravenous treatment should be given at from eight to twelve hour intervals until at least four intravenous and six intraspinal treatments have been given. If at the end of forty-eight hours of specific treatment there is not a marked improvement in the patient both from a clinical and a laboratory standpoint, another commercial type of serum should be substituted for the one in use. If the second type of serum should prove ineffectual at the end of the second forty-eight hour period, it should be changed also and so on until a suitable serum is found. Where laboratory facilities exist an attempt should always be made to obtain a culture from the initial spinal tap to be used for agglutination purposes in case the selection of a suitable serum from a number of commercial types becomes necessary.

Missouri State M. Association Journal, St. Louis

26: 1-50 (Jan.) 1929

Arthritides: Infection as Factor in Arthritis. R. L. Haden, Kansas City.—p. 1.
Id.: Syphilis as Cause of Arthritis. C. B. Francisco, Kansas City.—p. 2.
Id.: Radiologic Aspects of Arthritis. S. Moore, St. Louis.—p. 4.
*Id.: Physical Means in Treatment of Arthritis. F. H. Ewerhardt, St. Louis.—p. 7.
Id.: Arthritis and Orthopedic Surgeon. A. O'Reilly, St. Louis.—p. 12.
Kahn Quantitative Procedure. N. Nagle, St. Louis.—p. 15.
Etiology of Pernicious Anemia. C. W. Duden, St. Louis.—p. 18.
Tuberculosis in St. Louis: Analysis of Deaths for 1927—Age, Color, Sex and Type of Disease. H. H. Bell, St. Louis.—p. 21.
*Pruritis. R. A. Sparks, West Plains.—p. 24.

Physical Therapy in Arthritis.—The various methods which may be employed in the treatment of arthritis are reviewed by Ewerhardt, who presents a typical plan of treating a case of chronic periarthritis of the shoulder, with adhesions, limitation of motion and muscular spasm. It may serve as a general outline and may be modified to suit various conditions. Diathermy is applied to the joint, one of several recognized methods of technic being used, for from twenty to thirty minutes, the operator being guided by the size of the electrodes, the amperage and the tolerance of the patient. This is followed by manual manipulation of the joint in all directions. Generally there is limitation of abduction, and external and internal rotation of the arm. If the low wave current has been selected to produce muscular contraction, the galvanic or alternating current being used, the diathermy produces a deep congestion and the manipulation possibly a minor hemorrhage resulting in a temporary increase of pain. It is well at this time to use either the radiant lamp or the infra-red ray to relieve both the deep seated congestion and the pain. This should be followed by gentle sedative massage. At this stage whatever exercises seem indicated are introduced, the period lasting from one-half to two or three minutes and being followed by a Scotch douche, the initial water temperature of from 105 to 115 F. being decreased to from 70 to 40 F., depending entirely on the type and the condition of the patient. This bath consumes three or four minutes. The douche is preceded by an electric light cabinet bath once or twice a week and the patient may or may not receive in addition ultraviolet irradiation. Should there be an increase of pain the following day, the manual manipulation and exercise may be omitted or decreased in intensity. The number of treatments may vary from three to six a week until improvement indicates a decrease. This entire procedure takes from one to one and a half hours. The results are usually good from the point of view of relieving pain and of increasing the general well being of the patient. As to contractures and ankylosis, in some instances very good results have been obtained; in others no definite improvement has resulted. The best results have been obtained in disease conditions of the shoulders and lower back.

Pruritus Relieved by Insulin.—In a case of aggravatingly persistent pruritus ani, without any trace of sugar in the urine, Sparks gave two 10 cc. unit bottles of insulin. After three days the itching was gone to return no more. Since then he has given insulin in several cases of pruritus in which there was no sugar in the urine, with the same good result. No bad effects from its use have been observed.

Nebraska State M. Journal, Norfolk

14: 1-40 (Jan.) 1929

Clinic on Chronic Arthritis. A. Sachs, Omaha.—p. 1.
Progress of Surgery. H. H. Davis, Omaha.—p. 9.
Practical Surgery. J. E. Summers, Omaha.—p. 13 (Cont'd.)
Public Health. H. Von W. Schulte, Omaha.—p. 18.
Endocrinology in Its Relation to Skin Diseases. A. Schalek, Lincoln.—p. 21.
Doctor and Workmen's Compensation Law. C. C. Johnson, Lincoln.—p. 24.
Traumatic Intrathoracic Rupture of Thoracic Duct with Chylothorax. C. F. Andrews, Lincoln.—p. 26.
*"Omentitis Hypertrophica": New Clinical Entity. C. Emerson, Lincoln.—p. 29.

Hypertrophic Omentitis.—Three patients in whom Emerson observed hypertrophic inflamed omentum presented identical clinical pictures. They had excessive generalized adiposity. Each had had a previous subumbilical celiotomy with pelvic surgery. All had severe lower abdominal pain and excruciating tenderness, especially on bimanual examination, with a fulness and resistance in the pelvis suggestive of a tumor. The hypertrophic incarcerated omentum was the only lesion found. Complete relief from pain and tenderness followed excision of the involved omentum. Emerson feels the definitely abnormal omentum at the site of pain, the absence of any other pathologic condition, and the complete relief experienced after partial omentectomy warrant the conclusion that there is a distinct entity, occurring as a late sequel of pelvic surgery, due to chronic localized omentitis.

New England J. Medicine, Boston

199: 1297-1352 (Dec. 27) 1928

*Continuous Humming Murmur Heard in Supraclavicular and Infraclavicular Fossae and Over Manubrium Sterni in Children. R. S. Palmer and P. D. White, Boston.—p. 1297.
Anuria: Due to Pelvic Abscess. H. C. Clifton and B. B. Landry, Hartford, Conn.—p. 1300.
*Study of 370 Deaths of Primiparas. M. F. DeKruif, Wellesley, Mass.—p. 1302.
*Paroxysmal Headache: II. Migrainous State. C. W. McClure, Boston, and M. E. Huntsinger, Arlington, Mass.—p. 1312.
Acidosis and Alkalosis. J. L. Gamble, Brookline, Mass.—p. 1318.

Significance of Humming Murmur in Neck.—Fourteen cases, showing a continuous humming murmur best heard on the right side of the neck, and also heard in the infraclavicular fossa over the manubrium sterni and sometimes on the left side of the neck, have been reviewed by Palmer and White in order to call attention to a common physical sign in childhood, which, however, is not usually recognized. In this series of fourteen cases, patent ductus arteriosus was wrongly considered three times and aortic regurgitation was wrongly considered twice.

Causes of Deaths of Primiparas.—Septicemia, toxemia and hemorrhage, causes generally conceded to be largely preventable, were responsible for 60 per cent of 370 deaths reported on by DeKruif, and were secondary factors in many others. Seventy-two per cent of primiparas died after operation, whereas among the 614 multiparas studied 53 per cent died after operation. Lack of adequate prenatal care was evident in 73 per cent of the patients. One third had not had any prenatal care whatever. Also in about one third of the cases the cause of death had little or no relation to the prenatal care but was dependent on delivery or postnatal factors. In primiparas cesarean section resulted in living babies in 71 per cent of the cases, a much higher percentage than was the case after high and midforceps delivery, version and breech extraction. Toxemias and acute infections are in this study most frequently associated with causes of stillbirths and early deaths of infants. After 103 premature terminations of pregnancy only twenty-seven babies lived. Toxemias caused 54 per cent of the premature deliveries. Acute infections, heart disease and hemorrhage were the other chief causes. The outstanding features in the main causes were: (1) sepsis and (2) toxemias. A slightly higher percentage of sepsis occurred among the hos-

pital patients than among those delivered at home. Eighty-six per cent of the patients had had poor prenatal care or none at all. Almost half the hospital emergency cases were due to toxemia. The observations of the author emphasize the importance of hemorrhage, for she finds, in addition to twenty-three patients with hemorrhage as the primary cause of death, fifty-two with hemorrhage as a secondary factor, thirty-seven of whom died post partum and twenty-one of sepsis. The majority of the sudden deaths from embolus and shock followed operative procedure. Cardiac disease plays a more important part than was formerly supposed, occurring in 6.2 per cent of the primiparas and 7 per cent of the multiparas studied, in most cases dating to previous acute infections. The outstanding features of the operative cases are that in from 50 to 60 per cent no previous pelvic measurements had been taken or a vaginal or abdominal examination made. The majority of the cesarean sections were emergency measures without pelvic measurements, many having been performed after long labor and many vaginal examinations during labor. Lack of prenatal care is the most important factor in the deaths of illegitimate mothers, with toxemia the main cause of death. Midwives were mentioned in only twelve cases. The sixteen cases of fibroids show that fibroids do cause serious complications in pregnancy, and at delivery cause hemorrhage and dystocia, requiring surgical intervention. Proper pelvic or abdominal examinations must be made in order to recognize these in time to prevent trouble at delivery.

Paroxysmal Headache.—The observations reported by McClure and Huntsinger suggest that the onset of migraine at periods other than adolescence is more common than is usually recognized. Often the only symptom of migraine is paroxysmal headache. Two groups of migrainous patients have been described in whom the symptoms resemble those due to intra-abdominal lesions. Nevertheless, such lesions were not demonstrable. Whether the occurrence of positive cutaneous food protein reactions places migraine in the class of anaphylactic or allergic diseases is not established. However, the withdrawal of reacting proteins from the dietary is a rational therapeutic measure. Disturbances in lipid metabolism, an abnormal state of liver function and positive protein sensitization reactions are definite pathologic symptoms which have been demonstrated in migraine. They suggest that hepatic dysfunction plays an important rôle in the production of migrainous symptoms. The frequency of association suggests that the migrainous state bears some relation to the etiology of chronic cholecystitis and of peptic ulcer. So-called duodenal ileus is interpreted as an effect and not the cause of migraine. The pharmacologic action of, and a clinical status for, the intraduodenal administration of magnesium sulphate in migraine has been established. The adequate nutrition of the patient is a highly important factor in the treatment of migraine. Surgical operative measures intended to relieve any of the symptoms which may result from the migrainous state should be undertaken with the greatest hesitancy.

Oklahoma State M. Association Journal, Muskogee

21: 345-376 (Dec.) 1928

Pathology of Tuberculosis. H. G. Jeter, Oklahoma City.—p. 345.
Early Tuberculosis of Kidney. C. B. Taylor, Oklahoma City.—p. 349.
Prognosis of Tuberculosis. C. E. Bates, Oklahoma City.—p. 350.
Tuberculosis of Kidney. P. M. McNeill, Oklahoma City.—p. 352.
Treatment of Pulmonary Tuberculosis: Surgical Collapse. L. J. Moorman, Oklahoma City.—p. 354.
Surgical Treatment of Tuberculosis of Kidney. LeR. Long, Oklahoma City.—p. 357.
Laryngitis in Tuberculous. F. R. Vieregg, Clinton.—p. 358.

Philippine Journal of Science, Manila

37: 215-332 (Nov.) 1928

*Etiology of Leprosy: Possibility of Transference of Leprosy by Insects: Experimental Inoculation of Three Men. E. B. Vedder, Washington, D. C.—p. 215.

Mode of Transference of Leprosy.—Vedder reports on three experiments made on human beings to transmit leprosy without actual contact with lepers. Volunteer long-term prisoners were the subjects. One man was inoculated subcutaneously with material taken from a lepra tubercle. The result was negative. Two men were bitten by mosquitoes which had fed on leprous eruptions. The result was negative in one case. The second patient is still under observation. Vedder feels that there is ground for the belief that insects play a rôle in the transmission of leprosy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

J. Obstet. and Gynec. of British Empire, Manchester

35: 661-868 (Winter No.) 1928

*Etiology of Accidental Hemorrhage and Placental Infarction. F. J. Browne and G. H. Dodds.—p. 661.
*Experimental Investigation Concerning Toxic Abortion Produced by Chemical Agents. M. M. Datnow.—p. 693.
Adenomyolipoma of Fallopian Tube: Case. W. Shaw.—p. 725.
Unruptured Interstitial Tubal Pregnancy: Case. R. W. Johnstone.—p. 732.
*Diaphragmatic Hernia in Infant. G. H. Dodds and J. D. S. Flew.—p. 737.
*Apparent Absence of Pressor Substances in Eclamptic Serum. D. G. E. Potter.—p. 743.

Etiology of Accidental Hemorrhage and Placental Infarction.—All the evidence submitted by Browne and Dodds shows that the one important predisposing cause of accidental hemorrhage from the pregnant uterus is chronic nephritis.

Value of Oils in Toxic Abortion Found to Be Small.—Datnow concludes that the popular idea with reference to the action of certain oils is entirely erroneous. Experiment shows that pennyroyal, the most active of emmenagogue oils, certainly does not produce abortion; if anything, it lengthens the normal gestation period. Oil of tansy is less active still. Cadmium, selenium, acids and lead in large doses cause hemorrhage primarily, which leads to abortion. In no case was Datnow able to demonstrate death of the embryo as a primary cause of abortion.

Case of Diaphragmatic Hernia in Infant.—Dodds and Flew report the case of an infant that presented many curious symptoms, on the basis of which a diagnosis of congenital diaphragmatic hernia was made. The baby died on the eleventh day of life. The postmortem examination showed a combination of unusual features: (1) a spurious diaphragmatic hernia; (2) abnormal fissuring of the liver; (3) a mesentery attached to the gallbladder; (4) an early embryonic type of peritoneal relation to the abdominal viscera and (5) carcinoid tumor.

Absence of Pressor Substances in Eclamptic Serum.—The cause of the high blood pressure sphygmomanometer readings found in cases of eclampsia, in which there is no previous history of renal disease, has never been explained experimentally. Five cases of eclampsia were studied by Potter. In two the serum was again tested after an interval. The serum was also tested in a patient suffering from uremia. In each case normal serum was used as a control. In this small series of five cases, no evidence of any pressor substance was found. When the eclamptic serum caused a contraction of the uterus of the guinea-pig, a reaction was obtained with normal serum in as short a time, if not shorter time, and the effect with the histamine solution always occurred in a shorter period still.

Lancet, London

2: 1327-1372 (Dec. 29) 1928

Purpura. W. K. Hunter.—p. 1327.
*Myocardial Degeneration. B. Parsons-Smith.—p. 1332.
Bacillus Abortus Infection in Man. T. Thompson.—p. 1335.
Infection with Brucella Abortus. H. Harrison and G. S. Wilson.—p. 1338.
Relative Value of Different Mediums for Detection of Small Numbers of Anaerobic Bacilli and Their Spores. J. E. Marchal.—p. 1341.
Diphtheria Immunization. A. V. Neale.—p. 1342.

Myocardial Degeneration.—Parsons-Smith analyzes the records of fifty cases in which the outstanding clinical features were typical. The chief symptoms were: breathlessness, 80 per cent; anginal phenomena, 44 per cent; giddiness, fainting sensations and syncopal attacks, 40 per cent; cough, 20 per cent; nocturnal wheezing (so-called cardiac asthma), 8 per cent, and somnolence and deficient mentality, 4 per cent. Observations of the pulse included a wide range of abnormalities. The rate was definitely inconstant; in 70 per cent of the cases it was raised to 100 or more; in 8 per cent it was reduced to 40 or less

by auriculoventricular heart block, and in the remaining 22 per cent it was within normal limits. In the large majority the pulse tension was raised, but in 22 per cent the pulse was soft and easily compressed. Irregularities of rhythm were present in a large proportion of the cases, their order of frequency being: (1) premature contractions; (2) the gross irregularity typical of auricular fibrillation, and (3) the irregularity typical of heart block. In addition six of the patients were found to have pulsus alternans, a sign that must always be regarded as extremely serious. In 36 per cent of the group cardiac enlargement was considerable; in 32 per cent it was moderate; in 20 per cent it was slight, and in the remaining 12 per cent the size did not exceed normal limits. The apex impulse was in no way characteristic. The blood pressure figures showed wide variations.

1: 1-58 (Jan. 5) 1929

*Radiology from Surgeon's Standpoint. W. S. Handley.—p. 1.
*Blood Pressure in African Native: Bearing Upon Etiology of Hyperpiesia and Arteriosclerosis. C. P. Donnison.—p. 6.
Radium Therapy of Cancer of Buccal Cavity. S. Cade.—p. 8.
Diet and Peptic Ulcers in Cavies. H. E. Magee, W. Anderson and J. McCallum.—p. 12.
Severe Anemia of Pregnancy and Puerperium: Two Cases. W. Evans.—p. 14.
Appendicitis Simulating Other Diseases: Four Cases. C. Flandin and J. C. Gilroy.—p. 17.
Colonic Lavage. V. M. H. Rendall.—p. 19.
Submucous Injection of Hemorrhoids with Quinine Urea Hydrochloride. C. Howard.—p. 20.
Interpretation of Breast Histology. G. L. Cheatle.—p. 37.
Milk Consumption and Growth of School Children. G. Leighton and M. L. Clark.—p. 40.

Radiology from Surgeon's Standpoint.—Handley says that just as surgery may be led astray by the exclusive exaltation of technic, so, too, may radiology. An intimate knowledge of the pathology of the conditions with which he deals is just as necessary for the radiologist as for the surgeon. Probably more than half the therapeutic work of radiologists is concerned with cancer. A closer personal study by radiologists in their earlier years of the way in which cancer spreads would increase the efficiency and success of its radiologic treatment. This is all the more necessary if, as seems likely to happen in the near future, radiation largely replaces the knife in the treatment of cancer. Radiologists, like surgeons, must attack their own special pathologic problems, for the pathologist, with his illimitable field of research, generally considers pathologic histology an exhausted area and is too busy to enter it. Correct and precise ideas on the mode of spread of cancer are vital to a therapeutic radiologist. Young radiologists should be encouraged to study the pathologic side of radiology for themselves, first by the establishment of a museum, in charge of a histologist whose opinion would in the course of years become of decisive value in radiohistologic questions, and, in the second place, by the establishment of one or more research scholarships in radiohistology.

Study of Blood Pressure in African Natives.—The results of his investigation of native Africans in Kenya Colony, Donnison says, lend support to the view that hyperpiesia and arteriosclerosis are diseases associated with civilization. One thousand persons were examined. No instance of raised blood pressure was encountered, though abnormally low blood pressure was not uncommonly noted. On no occasion was a diagnosis of arteriosclerosis or chronic interstitial nephritis made. One case was encountered in which the history was suggestive of angina pectoris, but no abnormality was detected on examination, and the blood pressure was 105 systolic and 74 diastolic. Occasionally cases of hemiplegia are seen among natives, but such cases as Donnison had the opportunity of investigating have occurred in young men, without cardiovascular abnormality, and circumstances have suggested that relapsing fever may have been the cause. Aortic incompetence has been of syphilitic origin. Hypertrophied hearts, without intrinsic cardiac disease to account for the enlargement, are rarely seen in the African. Cases are sometimes encountered in which the apex beat is displaced to the left, but after investigation of a number of these cases Donnison arrived at the conclusion that the heart was displaced and not enlarged. There was no evidence of any myocardial inefficiency, and the blood pressure was invariably within normal limits. It has been noted that the native African usually shows much less atheroma in the aorta than does an average European of the same age. In a man of 30 frequently no signs of atheroma can be seen, and a man of 50 will often show slight traces only.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

54: 1215-1244 (Nov. 24) 1928

Dislocation of Internal Semilunar Cartilage. H. Welti and J. Arviset.—p. 1216.
*Förster's Operation in Cerebral Spastic Diplegia. Dim M. Yovtchitch.—p. 1219.
Stricture of Small Intestine Above Large Meckel's Diverticulum. J. Bloch.—p. 1227.
Treatment of Cancer of Tongue. J. L. Roux-Berger and O. Monod.—p. 1232.
Robertson-Lavalle Operation in Tuberculosis of Knee Joint in Child. P. Lombard.—p. 1242.

Förster's Operation in Cerebral Spastic Diplegia.—Yovtchitch reports a case of cerebral spastic diplegia in which he performed Förster's operation. There was almost immediate disappearance of the contracture of the lower limbs which has persisted for two years. The operation was not followed by any sensory disturbances.

Encéphale, Paris

23: 775-854 (Nov.) 1928

Diffuse Periaxial Encephalitis. W. M. Kraus and A. Weil.—p. 775.
Basal Metabolism in Catatonia and in Hebephrenocatatonia. H. Claude, H. Baruk and G. Médakovitch.—p. 797.
Circumscribed Senile Atrophy of Brain. C. I. Urechia and S. Mihalescu.—p. 803.
*Unusual Form of Hereditary Familial Disease. M. Serejski.—p. 821.

Unusual Form of Hereditary Familial Disease.—Serejski reports four cases of a peculiar familial disease not heretofore described. The patients were three brothers and one sister, aged 28, 22, 20 and 19 years, respectively. The parents and three other living children, aged 26, 13 and 7 years, respectively, were in good health. Seven children of the same family were dead from some infectious children's disease. The parents were not blood relations. The Wassermann reaction was negative in the patients and in the parents. The symptoms were quite similar in all four cases: speech and auditory disturbances, associated with some lesion of the cochlear part of the internal ear, hemeralopia, retinitis pigmentosa, dermographism, acrocyanosis and different degrees of mental insufficiency. The tendon reflexes of the lower limbs were exaggerated; signs of hypogenital hyperpituitarism were noted. In all four patients the disease started insidiously in childhood, without any infection or other cause, and progressed very slowly but steadily. Treatment was of no avail. Serejski thinks that this syndrome of familial disease, though remotely related to amaurotic idiocy, cannot be classified precisely and should be considered as a new form of familial disease.

Gynécologie et Obstétrique, Paris

18: 289-368 (Oct.) 1928

*Regional Vaccination in Metritis. A. Basset and P. Poincloux.—p. 289.
Surgical Treatment and Radiotherapy in Cancer of Female Genitalia. B. Archanguelsky.—p. 324.
*Fatal Meningeal Hemorrhage in the New-Born. H. Pigeaud.—p. 334.
Correction of Retroflexion of Uterus. A. S. Fintiktikow.—p. 349.

Regional Treatment of Metritis by Intramucous and Submucous Injection of Vaccines.—Basset and Poincloux, on the basis of clinical experience with thirty-eight patients, emphasize the superiority of "regional vaccination" over general vaccination in the treatment of metritis. They obtained as high as 65 per cent of complete cure and 27 per cent of marked amelioration. By regional vaccination they mean the introduction of vaccines (usually autovaccines with or without the addition of gonococcus vaccine) into the region directly or by way of the probable penetration of the infection into the uterus. They noted that whereas the subcutaneous injection of gonococcus or colon bacillus vaccines in cases of metritis may not give any reaction, the same dose of the same vaccine, introduced into the cervix or the vulva or even into the anorectal mucosa, may produce a marked reaction.

Real Causes of Fatal Meningeal Hemorrhage in the New-Born.—Pigeaud, after a careful study of the postmortem records of fifty new-born infants, comes to the conclusion that obstetric traumatism alone rarely causes fatal meningeal hemorrhage, but acts only as an accessory and accidental factor in infants with heredosyphilis or some other hereditary taint.

Journal de Chirurgie, Paris

32: 513-640 (Nov.) 1928

*New Technic for Cholecystectomy. A. Schwartz and S. Huard.—p. 514.
Postoperative Pulmonary Atelectasis. C. Lenormant and M. Iselin.—p. 527.

New Technic for Cholecystectomy.—To avoid injuring the common bile duct, the portal vein and the hepatic artery during cholecystectomy, Schwartz and Huard have evolved a new operative technic based on the principles of not using forceps during the operation, and of not isolating by dissection the various structures in the lesser omentum.

Journal de Chirurgie, etc., Brussels

27: 198-228 (April 28) 1928

*Meningeal Cyst and Incontinence of Urine and Feces. Lemoine.—p. 198.
Preoperative Injection of Fusible Alloys into Fistulas. Danis.—p. 198.
Calculi of Submaxillary Gland. Moreau.—p. 199.
Intrathoracic Goiter. Moreau.—p. 199.
Recurrent Dislocation of Shoulder. R. Loicq.—p. 200.
Hydatid Cyst of Liver. Moreau.—p. 202.
*Splenectomy in Purpura Hemorrhagica. Lemoine.—p. 202.
Biopsy in Exophthalmic Goiter. Lemoine.—p. 204.

Meningeal Cyst and Complete Incontinence of Urine and Feces.—Lemoine reports a case of complete urinary and fecal incontinence due to a meningeal cyst in the lumbar region, which was diagnosed with iodized oil; the patient was completely cured by operation.

Splenectomy in Purpura Hemorrhagica.—Lemoine reports a case of purpura hemorrhagica in a girl, aged 9, with increased bleeding time and a decreased number of blood platelets. After transfusion and splenectomy the hemorrhages stopped, the bleeding time returned to normal and the number of blood platelets increased.

Journal de Médecine de Lyon, Lyons

9: 615-642 (Nov. 5) 1928

*Real Chemical Nature of Pulmonary Anthracosis. J. Paviot, R. Chevalier and L. Revcl.—p. 615.
Nosology of Infantile Acrodynia. M. Péhu and A. Mestrallet.—p. 625.

Real Chemical Nature of Pulmonary Anthracosis.—Paviot et al. determined the iron content of the lungs and melanocytic sputum in cases of chronic bronchitis with emphysema. The excised, pigmented portions of the lungs were washed, desiccated and treated with a mixture of sodium and potassium carbonates and potassium nitrate; then the iron content was determined by Moreau's method (nitroso-β-naphthol). The iron content of the sputum was determined colorimetrically (by means of sulphosalicylic acid and ammonia) after desiccation and treatment with the same mixture of nitrates. All the black pigment, both in the lungs and in the sputum, proved to be iron pigment, similar to the iron in the heart failure cells in the sputum of patients with heart disease. Paviot thinks that the initial perivascular distribution of the pigment deposits in the lungs, as reported by Tripier, Bériel and others, suggests the possibility of the hemoglobinic origin of this iron pigment.

9: 643-682 (Nov. 20) 1928

Distinction Between Professional and Occupational Diseases. E. Martin.—p. 643.
*Vertebral Fractures in Spondylosis. E. Martin.—p. 647.
*Spontaneous Rupture of Aorta. Costedoat.—p. 655.
Medicolegal Aspects of Suprarenal Insufficiency. P. Mazel and A. Costedoat.—p. 659.

Divulsion of Vertebral Fragments and Traumatic Fissures of Vertebrae in Spondylosis.—Martin calls attention to the increased fragility of the spinal column in spondylosis and to its susceptibility to the slightest traumatism, such as an unexpected movement or a sudden muscular effort. He reports four cases of spondylosis with divulsion of vertebral fragments in the areas of the osseous neoformation and with fissures at the base of the vertebral exostosis. These conditions produce recurrent attacks of traumatic arthritis, which explain the persistence of pain on motion. The diagnosis is very difficult, because the roentgenograms are negative in the beginning, and only repeated roentgenologic examination reveals the true nature of the pains, by showing the development of the callus at the site of fracture.

Spontaneous Rupture of Aorta.—Costedoat states that a sudden increase in the blood pressure under the influence of emotion, effort or slight traumatism may cause a spontaneous rupture of the aorta, even in young persons, in cases of vascular syphilis or atheroma. The arch of the aorta is the usual location of the rupture. The evolution of the symptoms following the accident may require several days and even several months in cases of incomplete rupture, but, as a rule, death occurs early.

Presse Médicale, Paris

36: 1593-1608 (Dec. 15) 1928

*Chloride Content of Blood in Acute Intestinal Occlusion and Vomiting. A. Gosset, L. Binet and D. Petit-Dutaillis.—p. 1593.
Milkless Diet for Infants. J. Cathala and M. Vermorel.—p. 1596.
Sclerosing Treatment of Varicose Veins. Vacheron.—p. 1599.

Decreased Chloride Content of Blood in Acute Intestinal Occlusion and Vomiting.—Gosset et al. found a decreased chloride content of the blood in ten dogs, in which they produced hemorrhagic pancreatitis (by the intracanalicular injection of bile or intestinal juice) or vomiting (by the subcutaneous injection of apomorphine chloride). They think that these experiments suggest that the decreased chloride content of the blood in the cases of intestinal occlusion may be due to the loss of sodium chloride by vomiting and not to the fact that the chlorides are used for neutralizing toxins originating in the occluded intestine. They report a case of acute intestinal occlusion in an infant, aged 4 months, in whom they obtained excellent results from the postoperative use of hypertonic sodium chloride solution in enemas, and they think that sodium chloride should be used in the treatment of all forms of vomiting, especially in the vomiting of pregnancy.

Revue Française de Gynécologie et d'Obst., Paris

23: 417-463 (July) 1928

Douglasitis. R. Condamin.—p. 417.
*Ovarian Cysts After Hysterectomy for Fibroma. A. Cosacesco.—p. 428.
Anatomic Study of Ovaries in Malformations of Derivatives of Müllerian Ducts. J. Kreis.—p. 433.
*Exploratory Ovariotomy for the Diagnosis of Pregnancy. G. de Rouville.—p. 439.

Development of Ovarian Cysts After Hysterectomy for Fibroma.—Cosacesco observed quite often the development of large mucoid cysts in ovaries left intact during hysterectomy for fibromas. According to statistics collected by him, this happens in more than 3 per cent of hysterectomies. Since they cause pain and discomfort and necessitate a second operation, he thinks, that in hysterectomy for uterine fibromas, the ovaries also should be removed.

Exploratory Ovariotomy for the Diagnosis of Pregnancy.—De Rouville reports a case of metrorrhagia in a woman who had had menorrhagia for several months. The diagnosis was: uterine subinvolution due to metritis, bilateral adnexitis and menorrhagia of ovarian origin. He advised hysterectomy. After opening the abdomen, he had some doubt as to whether a hysterectomy should be done; after incising the right ovary, and finding in it a large true corpus luteum, he performed a right salpingo-oophorectomy and left the uterus untouched. In a month the patient had an abortion. Since then, in cases in which it is difficult to differentiate between pelvic tumors and the early stages of pregnancy, he performs an exploratory laparotomy and resorts to a hysterectomy only when the incision of both ovaries does not reveal the presence of a true corpus luteum.

Gazzetta degli Ospedali e delle Cliniche, Milan

49: 1473-1504 (Nov. 18) 1928

*New Researches on Cerebrospinal Fluid of Syphilitic Patients. G. Norsa.—p. 1473.
Pluriglandular Influence on Sexual Activity. C. Ortali.—p. 1476.
Essential Paroxysmal Tachycardia. G. Galli.—p. 1481.

New Researches on the Cerebrospinal Fluid of Syphilitic Patients.—Norsa emphasizes that the new method shows its value in disclosing the so-called latent reactions of the preclinical period of syphilis, in which the first reactions are light and amenable to treatment (healing also spontaneously), while the second are indicative of grave meningo-encephalic lesions, which will later produce the usual grave clinical symptoms. In the two fundamental types of reactions of the cerebrospinal fluid, the first is attended with an accession of lymphocytes and of polymorphous mononuclears, together with a few polymorphonuclears, and points to a superficial menin-

geal inflammation. The second is characterized by plasma cells and by large mononuclears, and points always to a profound parenchymal lesion. This differentiation explains the diverse reaction to treatment and the diversity of reaction also of the albumins of the spinal fluid, and shows that the method is much superior, from the diagnostic and prognostic standpoint, to the mere cell count. Norsa brings out that these two methods of research supplement each other, are easy and rapid of execution, and furnish new and important results in a field that is pregnant with difficulties and grave moral and also medicolegal responsibilities.

Riforma Medica, Naples

44: 1445-1477 (Nov. 5) 1928

Researches on Chemotherapy in Tuberculosis. N. Pende, M. Manara and V. Gavina.—p. 1445.
*Significance of Cerebral Embolism in Thrombosis of Left Auricle, with Mitral Stenosis. G. Scaglia.—p. 1446.
Unexpected Finding at Surgical Intervention for Abdominal Contusion. S. Scigliano.—p. 1451.

Significance of Cerebral Embolism in Thrombosis of Left Auricle, with Mitral Stenosis.—At the necropsy of Scaglia's patient, a mason, aged 36, who died four days after admission to the hospital, the conditions revealed were mitral stenosis from chronic endocarditis with visceral stasis and thrombosis of the left auricle resulting from multiple embolism (spleen, kidney, brain) and softening of the left sylvian area (anarthria, right hemiplegia). The causes of death were chronic inflammatory stenosis; left auricular thrombosis, and cerebral embolism. Scaglia concludes that cerebral embolism, associated with other symptoms (mitral stenosis, marked disturbance of the general circulation, extreme weakness of the pulse), has the same significance in the anatomoclinical picture of atrial thrombosis (the Ziemssen-Bozzolo picture) as an embolism of the lower limbs (gangrene).

Prensa Médica Argentina, Buenos Aires

15: 745-800 (Nov. 30) 1928

Pathogenic Mechanism of Kienboeck's Phenomenon in Pneumothorax. C. Bonorino Udaondo and A. Vadone.—p. 745.
Acetylcholine in Hypertension. F. L. Soler and J. E. Carulla.—p. 766.
*Sodium Borate in Chronic Juvenile and Senile Arteritis. A. Bergman. —p. 776.

Sodium Borate in Chronic Juvenile and Senile Arteritis.—In patients with juvenile or senile arteritis, Bergman has injected sodium borate in 4.5 per cent solutions up to 5 Gm. a day intravenously for one week. After all other methods of treatment had failed, this treatment was followed by relief from the intense pain. The author believes that two factors are involved in the production of the pain. One is the circulatory failure caused by an arterial spasm, which is transitory. In this type of pain sodium borate, by its antispasmodic action, gives great relief. The other causative factor may be either a local inflammation or an infection; in these cases the action of sodium borate is less noticeable. It does not exert any influence on the rapid advance of the disease or the outcome, which is amputation and sometimes reamputation of the affected extremities. In the treatment of this disease, the action of sodium borate could only be compared to that of rest in bed or of diathermy (when circulatory conditions are favorable) or to sympathectomy or arteriotomy. When surgery failed, sodium borate was likewise ineffective.

15: 801-840 (Dec. 10) 1928

Meningoblastomas. J. M. Obarrio, R. Orlando and E. Dowling.—p. 801.
*Chronic Tuberculosis with Multiple Localization. G. Orosco.—p. 817.
Anaphylactic and Related Conditions. P. M. Barlaro.—p. 824.

Uncommon Form of Chronic Tuberculosis with Multiple Localization.—Orosco's patient, aged 18, had fever, facial paralysis, right hemiplegia and choked disk. There were neither signs of jacksonian epilepsy nor disturbances of speech. Kernig's sign and cervical rigidity were absent. A very noticeable gibbus was present. A diagnosis of tuberculous meningitis and Pott's disease was made and confirmed by roentgen examination. Tuberculous lesions were also found in the epididymis. The purulent and bloody urine suggested renal tuberculosis. This condition lasted six months. Treatment was of no avail. Necropsy confirmed the diagnosis of tuberculosis with multiple localization.

Semana Médica, Buenos Aires

35: 1537-1628 (Dec. 6) 1928

*Roentgen Diagnosis of Ulcer of Duodenal Bulb. P. Schlanger.—p. 1537.
Industrial Physiology. B. A. Houssay.—p. 1598.
Postrheumatic Psychosis. H. M. Piñero.—p. 1601.
Late Burns from Erythema Doses of Rays of an Intensity Greater Than 160 Kilowatts. C. Heuser.—p. 1606.
*Phrenicotomy in Treatment of Supradiaphragmatic Abscess. O. Ivanissevich, I. Prini and R. C. Ferrari.—p. 1608.
Intermittent Cyanosis in Infant. J. M. Macera.—p. 1614.
Treatment of Infections Caused by "Giardia Intestinalis." F. L. Niño.—p. 1616.
Asthmatic Type of Castellani's Bronchospirochetosis. J. G. Fernández and M. A. Carri.—p. 1617.
Relation Between Sexual Disturbances and Some Intractable Functional Gastropathies. M. Helmann.—p. 1620.

Roentgen Diagnosis of Ulcer of Duodenal Bulb.—Schlanger reports the results of roentgen examination in 126 cases of duodenal ulcer. Fifty-seven of the patients were operated on; in fifty-five (97 per cent) of these, the diagnosis was confirmed.

Phrenicotomy in Treatment of Suppurative Supradiaphragmatic Abscess.—The observations made by Ivanissevich et al. in three patients in whom supradiaphragmatic abscesses had ruptured spontaneously into the bronchi prove the value of phrenicotomy in these cases. By paralyzing the diaphragm, the volume of the chest is reduced and the infected lung is collapsed. In the first case cited, the cavity was drained through the thoracic wall. The tenth rib was resected and a great quantity of foul smelling pus was evacuated. Five months later phrenicotomy was performed and the patient immediately improved and was discharged. Six months later he died of tuberculosis. Necropsy did not show any signs of a cavity. The transthoracic sinus had completely healed. In the second patient, aged 23, an hydatid cyst opened into the bronchi. The third patient, aged 30, had had typhoid; an hepatic abscess developed and ruptured into a bronchus; the ninth rib was resected. In both cases phrenicotomy yielded good results.

Archiv für klinische Chirurgie, Berlin

153: 1-182 (Nov. 26) 1928

End-Results of Gallbladder Surgery. J. Petermann.—p. 1.
Jackson's Membrane. H. Vollmar.—p. 9.
Chronic Intussusception. A. Daniels.—p. 16.
Contusions of Abdomen. B. Neukirch.—p. 23.
Epiphysis of Vertebral Body: Injuries. G. Schmorl.—p. 35.
Simple Ulcer of Small Bowel: Two Cases: Operation: Cure. J. Hofbauser.—p. 46.
Invagination of Jejunum into Stomach Through Gastro-Enterostomy Opening. K. Blond.—p. 53.
*Traumatic Perforations (Military and Civil) of Intestines. H. Wildegans. —p. 62.
*Head Injuries: 300 Cases. F. Schück.—p. 77.
Significance of Psychic State in Surgery. G. B. Bychowski.—p. 94.
*Experiences with Cholecystography. O. Kingreen.—p. 113.
Ligation of Splenic Vessels: Pathologic-Histologic Changes in Interval Viscera Consecutive Thereto. P. Romanenko.—p. 123.
Gastroptosis. V. Mandler.—p. 139.
*Bacteriology of Bile and Gallbladder. W. Mestitz and S. Rittner. —p. 145.
Fracture of Superior Maxilla Compression Treatment. P. P. Zarenko. —p. 161.
Retroperitoneal Tumors. I. Koch.—p. 170.
Fibromyo-Adenoma of Fundus of Gallbladder. E. Weidlinger.—p. 180.

Perforating Injuries of the Gastro-Intestinal Tract.—Wildegans reports on forty-three cases of perforating injuries of the gastro-intestinal tract. Twenty-one of these were gunshot wounds of the stomach. In spite of the best of ambulance service and immediate operation, only one third of these patients survived. The results in twenty-two cases of abdominal injuries —knife wound, seven cases; contusions, eleven; penetration by foreign bodies, two, and artificial perforation of the uterus, two—were much better, sixteen of the patients surviving. The prognosis is best in stab wounds. In one case an injury of the aorta was sutured and the patient lived. In cases of perforating gastro-intestinal lesions, the author urges immediate operation, even at the risk of shock, in order to check hemorrhage and prevent infection. Of the whole number of cases reported on (forty-three), life was conserved in twenty-three by operation.

Head Injuries.—Schück feels that cases of head injury have increased considerably in recent years and quotes figures from the Urban Krankenhaus. In 1910, the incidence of head

injuries as compared with all other cases was 8 per cent; in 1927, it was 12.6 per cent. He analyzes 300 cases. Street accidents were the most common cause—44.5 per cent (121 cases). Motor accidents caused eleven cases; bicycle accidents, fifteen cases; wagons, five cases, and street cars, thirty-eight cases. Among the 300 cases were twenty-eight cases of gunshot wounds. Of the remaining 272 cases, thirty-two terminated in death, a mortality of 11.8 per cent. Seventeen of these deaths occurred within from five minutes to six hours after the injury; five during the first day; two on the second day; two on the third, three on the seventh, one on the ninth and two on the twelfth day. Fifteen of the seventeen moribund patients had severe basal fractures as well as fracture of the vault, and four had severe fractures elsewhere in the body. In two cases skull fractures were not to be found, but severe compression and hemorrhage of the brain were present. Meningitis was discovered at the necropsy in only two of these cases. In three cases pneumonia was the cause of death. Of the 251 surviving patients, 118 were reexamined later. Forty-two of these were entirely well. Six had residual cerebral paralyses; one had a traumatic epilepsy. Operation, done later, effected a cure in this case. Seven patients had convulsions—not epileptic; in fact, they had had convulsions before the accident and these were really the cause of the accident. Five had arteriosclerotic lesions, present before the injury and made worse by it. The remaining fifty-eight patients complained of headache, dizziness, loss of memory and inability to work.

Cholecystography.—Kingreen states that in the surgical clinic at Greifswald, the methods of choice are the peroral administration of tetrabromophenolphthalein sodium, the rectal or duodenal administration of tetrabromophenolphthalein and the intravenous injection of tetraiodophenolphthalein sodium. The latter was the most reliable method. Contraindications are: arteriosclerosis, diabetes, endocrine disturbances and hyperthyroidism. The author is of the opinion that in order to increase the diagnostic value of the method, careful roentgen examinations of the stomach, duodenum and kidney pelvis should also be made in these cases.

Bacteriology of Bile and of Gallbladder.—Twenty-one of eighty cases examined bacteriologically by Mestitz and Rittner were entirely sterile. Even microscopic examination of the gallbladder tissue failed to reveal any bacteria in the tissue. The authors feel that twelve more cases can be regarded as being sterile, thus bringing the whole number to thirty-three, or 41.25 per cent. *Bacillus coli* was present in sixteen cases, seven times alone, five times with other germs. Staphylococci were present in fifteen cases—*S. albus* twelve times and *S. aureus* three times. Streptococci were present in twelve cases. In the remaining four cases, the typhoid bacillus, *Bacillus paratyphosus* B, *B. lactis-aerogenes* and *B. faecalis-alcaligenes* were each present in one case.

153: 183-494 (Dec. 7) 1928

Median Prostatectomy. F. Berndt.—p. 183.
Splenectomy in Gaucher's Disease. R. Mühsam.—p. 215.
Metaplastic Gastritis in Carcinomatous Stomachs. R. Geissendörfer. —p. 235.
Histologic Study of Male Breast Foundation for Explanation of Certain Pathologic Changes in Mammae. K. von Gusnar.—p. 253.
Subcutaneous Injuries of Kidney. S. Silvera.—p. 282.
Duodenojejunal Hernia: Hernia of Treitz. N. Garber.—p. 316.
Chronic Encapsulated Fibrous Peritonitis. N. L. Blumenthal.—p. 326.
Effect of Surgical Procedures on Carbohydrate Metabolism and Acid-Base Equilibrium. A. Chassin and A. Schapiro.—p. 335.
Inflammatory Tumors of Colon and Their Significance in Pathology of the Appendix. A. Nemilov.—p. 346.
*Unilateral Parathyroidectomy: A Surgical Treatment of Ankylosing Polyarthritis. N. N. Ssamarin.—p. 358.
Effect of Chloroform and Ether Narcosis on Function of Thyroid. N. W. Schwarz.—p. 386.
Bilateral Primary Sarcoma of Breasts. H. Offergeld.—p. 395.
Cholecystogastrostomy for Gastric and Duodenal Ulcer. A. Frenkel. —p. 407.
Primary Tumors of Liver. G. I. Gasparian.—p. 435.
Production of Experimental Rachitis by Means of Fetal Tissues. S. L. Timoffejew.—p. 475.
Operation for Hypospadias. G. Zechel.—p. 491.

Unilateral Parathyroidectomy in Treatment of Ankylosing Polyarthritis.—Ssamarin states that unilateral parathyroidectomy and resection of one half of the thyroid is indicated in cases of multiple ankylosing polyarthritis. In one half of the cases so treated marked improvement resulted in from seven to twenty-one months. However, the remaining portions of both glands may bring about new symptoms, making it appear that the operation had been without result. The operation is wholly without danger to life. Among fifty-five cases reported there was not a single death.

Deutsche medizinische Wochenschrift, Berlin

54: 1997-2048 (Nov. 30) 1928

*Irradiation Therapy in Gynecology and Its Effect on the Offspring. A. Döderlein.—p. 1997.
Preoperative Iodine Treatment of Patients with Exophthalmic Goiter. P. Clairmont and P. Meyer.—p. 2001.
Gas Narcosis and Its Significance for Narcosis Problem. E. Rehn. —p. 2003.
Problems in Pathology of Circulation. H. Dietlen.—p. 2006.
Pathogenesis of Sudden Death. R. Jaffé.—p. 2010.
Classification of Psychosis. K. Birnbaum.—p. 2012.
Psychogenic Disturbances. H. Hoffmann.—p. 2014.
Immoral Offenses of Senile Persons. G. Strassmann.—p. 2018.
Frequency of Certain Blood Groups in Patients with Pulmonary Tuberculosis. P. A. Schmitt.—p. 2019.

Irradiation Therapy in Gynecology and Its Effect on the Offspring.—Döderlein says that many authorities are of the opinion that irradiation therapy in gynecology causes deformities in the offspring. They contend that the rays which destroy cancer cells in the uterus also injure the ova, and that if an ovum that has been irradiated is fertilized, the offspring is subject to deformities. Döderlein asserts that this statement is not proved by facts. He reports cases which have been under observation for more than eleven years. He says that if an ovum is fertilized shortly after the irradiation, abortion usually results. However, it is proved that women who had undergone irradiation treatment were able to give birth to normal offspring years afterward. Of forty-two pregnancies, eight ended in abortions and three in premature births. The others went to term and none of the infants showed abnormalities. Concerning the abortions, it is pointed out that these are not necessarily due to an injured ovum but may be caused by a weakened condition of the uterus. Döderlein concludes that irradiation therapy causes temporary sterility and in some cases abortion. It is not proved, however, that roentgen therapy causes deformities in the offspring.

Deutsche Zeitschrift für Chirurgie, Leipzig

213: 1-144 (Dec.) 1928

Effect of Operations on Vegetative Nervous System and Splenic Artery on Blood Corpuscles. K. Flick and E. Traum.—p. 1.
Surgical Significance of Heterotopic Proliferations of Uterine Mucosa. F. Gross.—p. 13.
Surgical Interventions on Cardia and Abdominal Portion of Esophagus for Benign Conditions. E. Hesse.—p. 23.
Surgical Experiences with Appendicitis: Unusual Pathologic Lesions. T. Papayoannou.—p. 30.
Etiology and Treatment of Serous Hyperplasia of Intestine. H. Toole. —p. 44.
Diagnostic Difficulty of Breast Tumors, Especially Primary Carcinoma of Lung. P. L. Mirizzi.—p. 50.
*Peculiar Symmetrical Enlargement of Epiphyses and Metaphyses of Five Year Old Boy. T. Hühne and H. Schönfeld.—p. 73.
Congenital Dislocation of Astragalus. C. Deutschländer.—p. 91.
Pathologic Anatomy of Old Fractures. E. Brack.—p. 114.
Plastic Replacement of Anterior Crucial Ligament with Functional and Anatomic Replacement. E. Gold.—p. 120.
Flexion Contracture of Big Toe. H. Dieterich.—p. 127.
*Osteomyelitis: Determination of Blood Fat. M. Nakata.—p. 132.
*Sarcoma of Inferior Vena Cava. E. Melchior.—p. 135.
Aneurysm of Abdominal Aorta Rupture into Abdominal Cavity. H. Mannheim.—p. 140.

Möller-Barlow Disease: Subperiosteal Hematoma.—Hühne and Schönfeld report an instance of this kind, the patient being a boy, aged 5 years. All the joints, except the elbow, were involved. The region of the epiphyses was enlarged and very painful on pressure. The adjoining metaphyses were also tender. These facts, and the clinical history, led to the belief that this was a case of late rickets. However, the blood was entirely normal chemically. Roentgen examination not only controverted this diagnosis but showed the typical picture of subperiosteal hematoma, the disease first described by Möller and Barlow. Treatment by means of artificial sunlight and appropriate diet gave speedy results. Within a few months the boy was able to walk and he was entirely free from pain. The authors removed a piece of the external malleolus and give a very detailed description of its appearance.

Determination of Blood Fat in Osteomyelitis.—Nakata believes that the determination of the blood fat, in the form of

droplets, has diagnostic significance in cases of osteomyelitis. He mixed from 0.5 to 1 cc. of blood removed from the cubital vein with an alcoholic solution of Sudan III, and after several minutes examined slides of this microscopically. Fat droplets were found in thirteen of fifteen cases of acute osteomyelitis (87 per cent); in 29 per cent of cases of chronic osteomyelitis; in all cases following sequestrotomy or curetting of the bone marrow (in one of these cases also in the urine), and in all cases of osteomyelitis in animals. For purposes of control, a negative result was obtained in all cases of acute and chronic infections of soft parts (furuncles, carbuncles, phlegmons, abscesses—old and recent); inflammations of joints; bone and joint tuberculosis, and inflammations and injuries of soft parts in animals. However, fat droplets are found comparatively frequently in pregnant women. Therefore, the author concludes that when fat droplets are found in the blood they are indicative of acute osteomyelitis, but one must bear in mind that occasionally (never in the author's experience) fat droplets may be absent in bona fide cases of acute osteomyelitis. Furthermore, more than one examination should be made if the first is negative before it is stated definitely that fat droplets are not to be found in the blood. In infants and very young children fat droplets are never present in the blood, as the bone marrow does not contain any fat, or very little, early in life.

Sarcoma of Inferior Vena Cava.—Melchior relates the case of a woman, aged 24, who complained of severe pain in the back, especially in the gluteal region, and who had been treated repeatedly for sciatica without any relief. Later she became nauseated and her stomach seemed to be full all of the time. Just before Melchior saw her a tumor in the upper abdomen was discovered. The leukocytes numbered 16,000. The diagnosis was cyst of the pancreas, even though the temperature was normal. At operation, the pancreas was found to be normal but an enormous mass occupied the upper part of the abdominal cavity, which extended downward as far as the iliac artery and upward under the liver. It proved to be a sarcoma of the inferior vena cava. According to the history it had been present for about two years, manifesting symptoms gradually and only a few at a time. The patient developed a postoperative parotitis, necessitating incision, and pneumonia which went on to gangrene of the lung. She died on the third day after the operation. Necropsy was refused. At no time was there any evidence of edema in spite of the extensive resection of the vena cava.

Medizinische Klinik, Berlin

24: 1855-1892 (Nov. 30) 1928

Etiology of Genital Hemorrhages. W. Benthin.—p. 1855.
Diabetes and Cholelithiasis. G. Singer.—p. 1858.
Industrial Hygiene: Roentgenologic Examinations of Bakers and Millers. E. Krüger and E. Saupe.—p. 1860.
*Treatment of Functional Deficiency of Ovaries by Intravenous Injection of Ovarian Extract. B. Cohn.—p. 1863.
Kala-Azar in Infants. N. J. Spyropoulos.—p. 1865.
Ulcer on Greater Curvature of Stomach Perforating into the Spleen. G. H. Feist.—p. 1866.
Casuistics of Latent Gonorrhea. K. Finkenrath.—p. 1867.
Neuralgia of Phrenic Nerve. P. Herszky.—p. 1868.
Value of Sputum from Pharynx and Larynx for Diagnosis of Tuberculosis. Unverricht.—p. 1868.
Alimentary Acidosis. O. Loew.—p. 1869.
Micromethod for Determination of Total Potassium Content of Blood. L. Feldmann.—p. 1871.

Treatment of Functional Deficiency of Ovaries by Intravenous Injection of Ovarian Extract.—Cohn points out that the symptoms of functional deficiency of the ovaries are chiefly psychic. This accounts for the fact that these disorders are usually diagnosed and treated as nervous derangements. Decrease in efficiency, abnormal irritability and sensitiveness, fatigue and weariness are the most common symptoms; they are characteristic of the preclimacteric period. Cohn treated fifty cases of this condition with good results. The ovaries were stimulated diathermically and ovarian extracts were injected intravenously (the author states that it is best to use aqueous solutions). The injections should be given every other day. Twelve treatments are usually required. The quantity of extract used in each injection differs in the individual case. Cohn always started with 1 cc. Some patients, however, required from 2 to 5 cc. The author considers this method a valuable aid in combating not only the premature loss of function of the ovaries but also the psychic symptoms.

Münchener medizinische Wochenschrift, Munich

75: 2087-2126 (Dec. 7) 1928

Effect of Vitamin C Deficiency on Pregnant Women, Fetus and the New-Born. Reyher, E. Walkhoff and O. Walkhoff.—p. 2087.
Desensitization Treatment of Hay-Fever. M. J. Gutmann.—p. 2090.
Blood as Source of Pigments. L. Heilmeyer.—p. 2092.
Simplification of Hohn's Method of Culture of Tubercle Bacilli. F. E. Loewy.—p. 2096.
*Postoperative Localization of Gauze Sponges Left in Abdominal Cavity. A. Döderlein.—p. 2096.
Dosage of Nonspecific Medicaments. K. H. Vohwinkel.—p. 2097.
Use of Irradiated Ergosterol in Gynecology. F. Ertl and A. Hain.—p. 2098.
New Splint for Treatment of Fractures of Lower Extremity. A. Ritter.—p. 2099.
*A New Pleximeter. R. Marder.—p. 2100.
Thumb-Sucking in Girl Cured by Psychotherapy. A. Bretschneider.—p. 2101.

Postoperative Localization of Sponges Left in Abdominal Cavity.—For the preparation of the sponges used in abdominal surgery Döderlein proposes to utilize a special gauze with some bronze wire incorporated in it, so that the postoperative localization by means of roentgen examination will be greatly facilitated.

A New Pleximeter.—Marder describes a new pleximeter devised by him. It is not solid, as all other pleximeters are, but hollow and constructed like a small violin. It increases the resonance and permits more accurate determination of the absolute or relative dulness, especially in fat persons and in the mammary region in women.

Wiener klinische Wochenschrift, Vienna

41: 1673-1704 (Dec. 6) 1928

Development and Progress in Thoracic Surgery. W. Denk.—p. 1673.
*Early Diagnosis of Pregnancy. C. Bucura.—p. 1677.
Internal Secretion of Pancreas in Parenchymal Diseases of Liver, and Its Relation to Galactose Tolerance. S. Hirschhorn, L. Pollak and A. Selinger.—p. 1678.
*Treatment of Constitutional Obesity with Hypophyseal Preparations. T. C. Hunt.—p. 1682.
*Diagnosis and Treatment of Hematuria. V. Blum.—p. 1683.
Localization of Icterus of Skin. B. Bienfeld.—p. 1685.
Frequency of Cancer in Tyrol. G. B. Gruber.—p. 1686. C'cn.
Important Hormonal Disturbances During Childhood and Their Treatment. R. Wagner.—p. 1689.
Significance of Roentgenoscopy in Diagnosis and Prognosis of Early Pulmonary Tuberculosis in Adults. E. Zdansky.—p. 1690.

Early Diagnosis of Pregnancy.—Bucura points out that the methods commonly used to diagnose pregnancy have the disadvantage that they indicate gravidity only in the more advanced stages. The fact that most of them are laboratory methods and that they usually are complicated and expensive constitutes another drawback. When applied in the very early stages they frequently give erroneous results. The palpation methods are the most reliable. However, even these are applicable only after the sixth week. Bucura describes a case which led him to discover a new method for diagnosing pregnancy in the earliest stages. A woman, married for two years, consulted him because of sterility; at this time her menstrual period was about due. The uterus was somewhat smaller than usual and Bucura considered this to be the probable cause of the sterility. An examination two weeks later revealed a pregnancy in the sixth week. This proved that the gravidity was already in the fourth week at the time of the first consultation. Similar observations were made by the author in eighteen other cases. From this he concludes that the uterus contracts to a certain degree between the fourth and sixth week after the beginning of the last menstrual period. Bucura considers this to be the earliest sign of pregnancy.

Is It Possible to Combat Constitutional Obesity with Hypophyseal Preparations?—Hunt experimented on four persons. Limitation of diet had been of no avail, so they were given subcutaneous injections of 1 cc. of a pituitary preparation daily for about two weeks. During this period the diet was not restricted. In comparing the weights of the patients before and after this treatment, Hunt found no decrease whatever. He concludes that his experiments do not justify the use of pituitary preparations to produce loss of weight.

Diagnosis and Treatment of Hematuria.—According to Blum, hematuria may be due to various disorders in the urinary tract. For correct analysis of the symptoms he advocates

roentgenoscopy, examination of the urine and clinical examination of the urinary organs. The therapy should be based on the results of a careful diagnosis. Profuse bleeding, which in a short time would make the patient anemic, necessitates immediate surgical intervention. To offset the loss of blood the author advises blood transfusion from a blood relation. This has proved valuable in prostatic bleeding, extirpation of the kidney, hemophilic bleeding and hemorrhage from the bladder. Bleeding from the kidneys should be treated surgically if the common remedies such as rest, restricted diet and cold applications prove ineffective. Blum also advocates the use of medicaments and injections. A tumor of the kidney requires excision of the kidney and a renal calculus necessitates surgical incision. Bleeding renal cysts can be effectively treated by ignipuncture. A tuberculous kidney should be excised. Hemorrhage from the kidneys which is refractory to other remedies necessitates removal of the renal capsule. In case of bleeding from the bladder, the patient should lie on his back and cold applications should be employed. If the hematuria is the result of cystitis a permanent catheter should be introduced; this applies also in cases of hemorrhage from the prostate. Urinary calculus calls for operative intervention. Bleeding from the urethra should be treated with cold applications or injections of cold water, or astringent solutions should be given. Ulcers of the bladder and polypi of the urethra should be cauterized.

Zeitschrift für urologische Chirurgie, Berlin

25: 305-485 (Nov. 12) 1928

Double Ureter with Abnormal Terminus. A. von Adler-Rácz.—p. 305.
*Tuberculosis of Kidney and Pregnancy. E. Dózsa.—p. 310.
*Pyelitis, Pyelonephritis and Suppurative Nephritis in Pregnancy. E. Dózsa.—p. 344.
Congenital Dystopic Kidney. I. M. Talmann.—p. 386.
*Pneumopyelography. K. Neuwirt.—p. 409.
Hydronephrosis Resulting from Unusual Course of Vena Cava. H. Kengyel.—p. 417.
Anomalies of Female Sex Organs with Absence of One Kidney. A. W. Walter and M. W. Krasnoselsky.—p. 424.
Histology of Caruncula Urethrae of Women. F. Schroeder.—p. 442.
Structure and Function of Kidney Stroma and Fibrous Capsule. F. Fuchs.—p. 452.
Diagnosis of Kidney Disease by Means of Acid-Alkali Excretion Test: Etiology, Diagnosis and Treatment of Renal Calculus. G. von Pannewitz.—p. 462.

Tuberculosis of the Kidney and Pregnancy.—Dózsa reports a case in which tubercle bacilli were being excreted by the kidney without any apparent involvement of the kidney tissue itself. However, the bacilli were arrested in the urinary bladder and were responsible for very severe pathologic changes in the bladder wall. Examination of the lungs disclosed tuberculous involvement of the apexes. The patient stated that in two previous pregnancies she had had severe pain in the back and then bladder disturbances, but that after the birth of her baby all symptoms had disappeared. The author, who is an associate of Illyés in the urologic clinic in Budapest, has seen twenty-seven cases of tuberculosis of the kidney in connection with pregnancy, fourteen during pregnancy and thirteen during the puerperium, exactly 10 per cent of the 270 cases of tuberculosis of the kidney in which a nephrectomy was performed. In thirteen cases there was marked elevation of the temperature; in ten cases hematuria was the outstanding symptom. The kidney was removed in nineteen cases, six times during pregnancy—from the second to the sixth month—and thirteen times from two months to two years after delivery. Two patients refused operation. In six cases the operation could not be performed, once because of severe pulmonary disease and five times because of extensive involvement of both kidneys. Recovery after operation was complete in every case. In one operative case, the patient aborted during the sixth month—one month after the nephrectomy; in one other case, because of an intractable ulcer of the bladder, therapeutic abortion was performed in the third month of pregnancy—one month after the nephrectomy. The remaining four patients went to term. Examination of the removed kidneys and of kidneys post mortem has shown that the tuberculous process is usually rather an extensive one, leading especially to cavitation. The babies are apparently not infected in utero even in severe cases of kidney tuberculosis.

Pyelitis of Pregnancy.—Dózsa reports on 100 cases of pyelitis and pyelonephritis in pregnancy. In six cases there was a spontaneous abortion; in ten cases a therapeutic abortion had to be performed—in seven cases because of severe involvement of both kidneys, and in two cases because of involvement of the remaining kidney after removal of one kidney. Four of the women died from sepsis or uremia resulting from renal insufficiency, in spite of therapeutic abortion and removal of the affected kidney. In simple cases of pyelitis, only conservative treatment is indicated. When this fails, therapeutic abortion must be done to prevent the occurrence of what might prove to be a fatal pyelonephritis. When radical treatment is called for, the time of its institution is of the greatest moment so far as the safety of the patient and the life of the baby are concerned. When done toward the end of the pregnancy, the fact that a living child is assured simplifies the problem. In such cases, if the kidney can be spared, abortion should be done. That is preferable to a nephrectomy. However, when the kidney is abscessed, it should be removed and the pregnancy allowed to go to term. The author is convinced that often women have been allowed to go to term and then die shortly after delivery because of failure to remove the kidney. In cases of unilateral nephritis apostematosa and in those cases of pyelonephritis in which the presence of miliary abscesses is suspected, the author prefers to do a decapsulation and good results have been noted after this procedure, at least as good as those seen after nephrotomy. Furthermore, if decapsulation fails to give relief because of the presence of large abscesses, nephrectomy is preferable to nephrotomy. Abortion is always indicated in cases of unilateral or bilateral pyelonephritis. When abortion fails to avert further symptoms, decapsulation should be done.

Pneumopyelography.—Neuwirt regards this procedure as the method of choice in the diagnosis of nephrolithiasis. It will disclose the smallest stones more often and better than pyelography alone. Even simple incrustations stand out very clearly. Furthermore, one examination suffices to obtain all the information needed. The author has found it to be the only method which made possible a diagnosis of tumor of the kidney pelvis or of the ureter. In cases of tumor of the kidney parenchyma, pyelography is the method of choice. Bleeding from the pelvis of the kidney is not a contraindication to the method.

Acta Radiologica, Stockholm

9: 411-532 (Sept. 30) 1928

*Symptoms of Menopause Resulting from Roentgen Irradiation: Comparison with Surgical Menopause. R. Gilbert and A. Eghiayan.—p. 411.
Massive (Atelectatic) Collapse of Lung: Six Cases. L. R. Sante.—p. 434.
*Congenital Thoracic Cysts and Lung Deformities in Roentgenogram. P. F. Møller.—p. 460.
Water Manometer: An Aid to Making More Sharply Delineated Roentgenograms of Moving Organs. H. Laurell.—p. 478.
Mecapion: Means of Measuring Dosage of Roentgen Ray Accurately. S. Strauss.—p. 482.

Symptoms of Menopause Resulting from Roentgen Irradiation: Comparison with Surgical Menopause.—Gilbert and Eghiayan have analyzed fifty cases of artificial menopause induced by roentgen therapy, comparing the symptomatology with that of the surgically induced menopause. In general, the roentgen menopause is accompanied by fewer and less severe symptoms than the surgical menopause, and they ascribe this to the fact that in the former the destroyed ovarian tissue is absorbed gradually by the organism, producing a sort of ovarian auto-opotherapy and preventing disturbing untoward symptoms.

Congenital Thoracic Cysts and Lung Deformities in Roentgenogram.—Møller reports a case of congenital mediastinal cyst, diagnosed by means of roentgen examination, which healed following operation. He discusses the question of congenital cystic formations in the lung, and describes five cases of congenital bronchiectatic cystic formations in that organ, likewise diagnosed roentgenologically. One of them probably developed from an accessory lung. He comments on the characteristic roentgen picture in those five cases and points out how easily it may be mistakenly interpreted as representing a cavernous tuberculosis. The most notable feature is the peculiar disposition of the cavities in relation to one another: their irregular arrangement, with each one sharply delimited and separated from the others by a fine network of consolidations, without any infiltrations or pulmonary tissue between.